

THE MILLING WORLD

AND

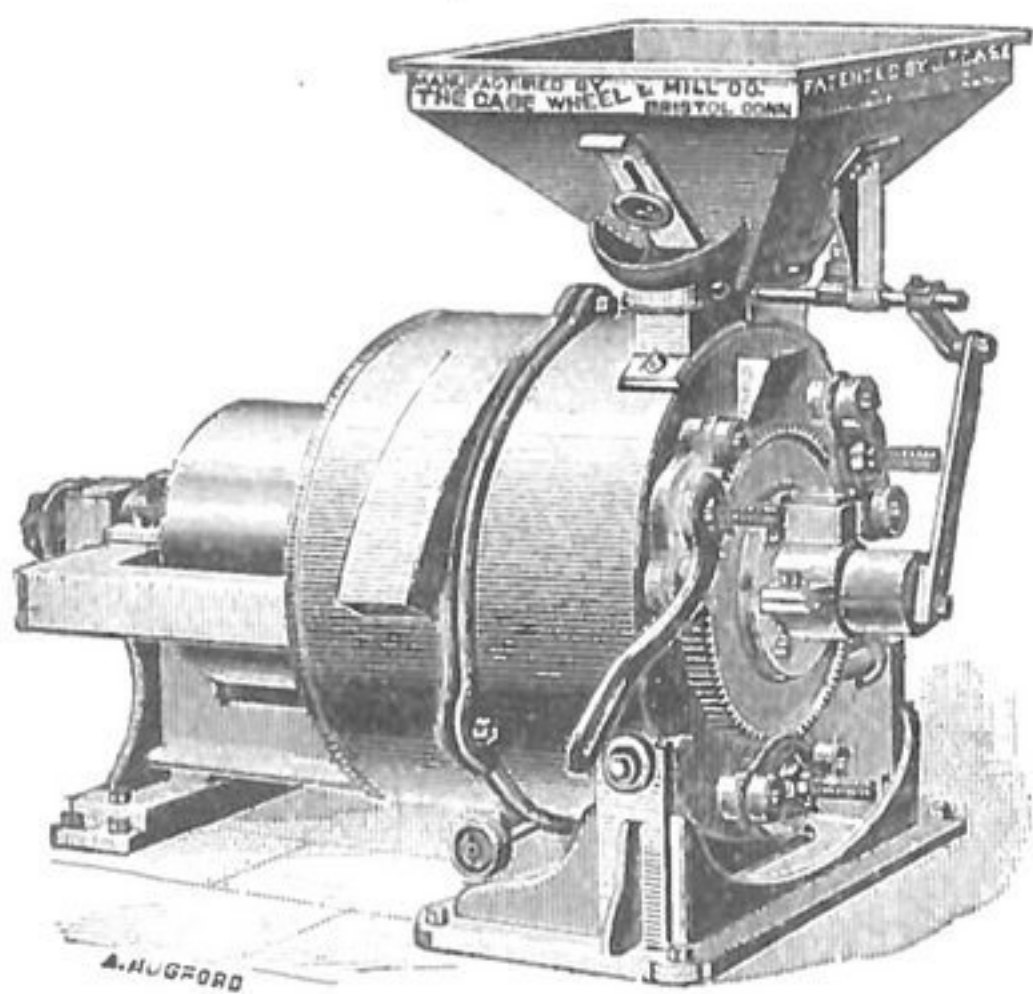
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

Vol. XIX. No 24.

BUFFALO, N. Y., FEBRUARY 11, 1889.

\$1.50 PER YEAR.



VICTORY OVER ALL OTHERS. SINGLE & DOUBLE VERTICAL GRINDING MILLS. (J. T. CASE'S PATENT.)

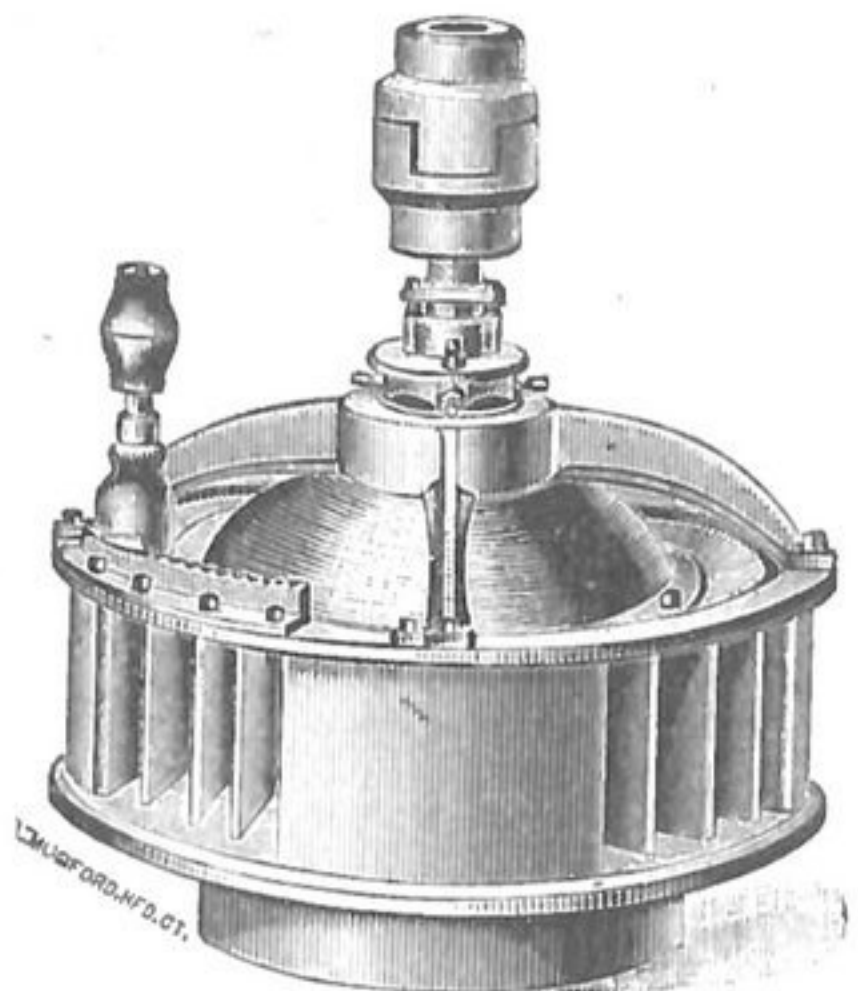
FACTS ARE MIGHTIER THAN ASSERTIONS. READ WHAT THEY SAY:

"Our 20-inch mill made by the Case Wheel & Mill Co. is in every respect satisfactory, easy to handle, and best results obtained of any mill in the country, with same quantity coal and power."—A. S. RUSSELL & Co., Meriden, Conn.
"Superior to any mill in use."—Geo. WESTON, Bristol, Conn.
"The best satisfaction in quantity and quality."—CHILD'S ELEVATOR, Manchester, Ct.
"We take pleasure in recommending it."—GARLAND LINCOLN & Co., Worcester, Mass.

SEND FOR CATALOGUE—ILLUSTRATED AND DESCRIPTIVE.

The Improved National Turbine Water Wheel

The Best for Economy; The Best for Durability; The Best for Power. ONE THOUSAND FIVE HUNDRED NATIONAL WATER WHEELS IN USE Prove that our Assertions are Supported by the Leading Manufacturers in the Country. Send for illustrated catalogue and prices to the manufacturers.



The Case Wheel & Mill Co., Bristol, Conn.

NOTICE.

The J. B. ALLFREE CO., INDIANAPOLIS, IND., wish to inform their milling friends and the trade in general that they are prepared to build and equip throughout mills of any capacity in a style that can not be excelled. Bolting Cloth Trade a Specialty.

COMPLETE OUTFITS

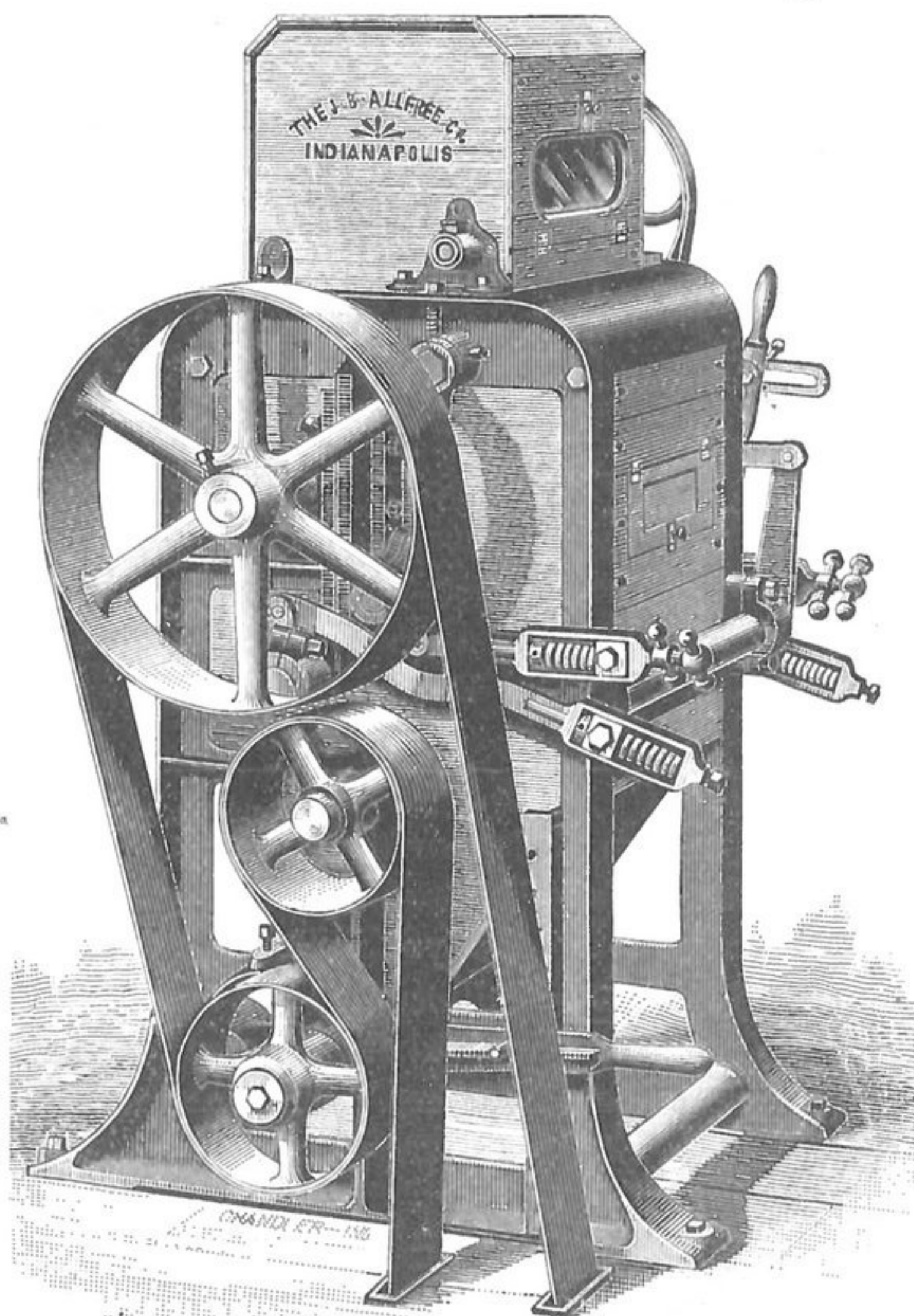
—FOR—

CORN-MEAL

—FURNISHED AT—

LOW PRICES.

Millers interested in Hominy and Germless Goods will do well to get prices from us on the Keystone Huller and Pearler.



—WE MANUFACTURE—

AUTOMATIC ENGINES.

- The Keystone Four Roller Wheat Mill.
- The Keystone Four High Corn Mill.
- The Success Bolter and Dresser.
- The J. B. Allfree Purifier.
- The J. B. Allfree Sieve Scalper.
- The J. B. Allfree Co.'s New Bolting Chest.
- The J. B. Allfree Centrifugal Reel.
- The Climax Bran Duster.
- The Allfree Flour Packer.
- The Keystone Huller and Pearler.

ADDRESS FOR ILLUSTRATED DESCRIPTIVE CATALOGUE,

The J. B. Allfree Co., Indianapolis, Ind.

RIGHT TO THE POINT

"The best laid plans o' mice and men
Gang aft aglea."
But the Case Mill gets there every time,
So all the millers say.



"WE PUT IN A CASE SHORT SYSTEM MILL."

Old father Wise, with twinkling eyes,
Points backward to the well-filled till,
While Thrifty scans the new made plans
To double up the CASE SHORT MILL.



"WE DIDN'T!"

Old Shiftless weeps—the sick cat sleeps,
Doolittle has gone out to pray,
The spiders fill the empty till,
While hungry rats now hold full sway.

JUST TAKE A LOOK AT WHAT THIS MAN WRITES:

THE CASE MFG. CO., COLUMBUS, OHIO.

Gentlemen: Enclosed please find settlement in full of my account. The 4-break mill works splendid and am well pleased with it. The Inter-Elevator Flour Dressers are everything you represent, both in capacity and excellence of work. The Special Purifiers are a fine machine and far ahead of the Purifiers you put in my other mill in '83. Am especially pleased with the millwright work. It is well planned and finished in a good, workmanlike manner. I can not praise your millwright and his work too highly.

Yours resp'y,

ELYRIA, OHIO, OCT. 10, 1888.

GARRET REUBLIN.

If you want a successful mill write us. Long System Mills remodeled on short notice. Case Short Break Corrugations put on any make of rolls. Our Roller Corn Mills are a most profitable investment. Now is the time to put one in your mill. Our Aspirator and Purifier for Corn Meal will astonish you. Belting, Gearing, Elevator Supplies, Silk and Wire Cloths shipped promptly on receipt of order. If you want mill supplies of any kind write us. Estimates on mills of any desired capacity furnished on short notice. Write us at once and state the capacity wanted and number of grades of flour you wish to make. The Automatic Feed on our machines makes them superior to all others. Catalogues and Circulars Mailed on Application.

RE-DRESSING ANY MAKE OF ROLLS PROMPTLY A SPECIALTY.

THE CASE MANUFG. CO., COLUMBUS, OHIO.

PLEASE MENTION "THE MILLING WORLD."



VOL. XIX. No. 24.

BUFFALO, N. Y., FEBRUARY 11, 1889.

\$1.50 PER YEAR.

OUR Milwaukee cotemporary, "The United States Miller," signalized the beginning of its fourteenth year by a decided change in form, size and features. It promises to publish a paper valuable to the trade and to present appropriate illustrations in future numbers.

It is curious to note how differently the same thing may be viewed in two contiguous localities. For instance, a recent report from Rosco, Dakota, mentioning the frosted wheat, says: "It is not fit for feed. They are dumping it on the ground. A farmer brought in a load at Grand Forks; they would not make him an offer, so he hauled it outside of town and dumped it on the ground. This is the case with nine-tenths of the frosted wheat." That is plain, blunt talk, unpleasant to hear, but honest and above-board. Only a short time ago, right over the border from Dakota, it was announced that the frosted Manitoba wheat was in high favor in Canada, and that it was really a fine milling article, despite the frosting. Of course no sane or intelligent person believed that the frosted wheat could be considered valuable and available for milling purposes. Which is the better way to describe it, the Yankee way or the Canuck way?

ACCORDING to recent accounts the formation of associations of more or less importance seems to be the principal occupation of the millers of the United States this winter. It is a dull week, indeed, that does not see at least one new millers' association formed. Most of these associations are confessedly and avowedly local, but there is a suspicion current that the men who are leading in their formation are a prominent in the Millers' National Association, and that during the present year these men will make a decided effort to lift all these smaller organizations in a body into the national organization. If that is the truth, then the formation of these associations will be in vain. It will never be possible to maintain genuine millers' associations by merging them all forcibly or trickily into a national body that is devoted purely to the marketing of flour and the cornering and controlling of the grain and flour supplies of the country. That millers can and do receive great benefit from occasional gatherings and from interchange of thought, methods and experience is true, but the national organization in its present form, aim and scope does not offer such benefits, as the last four or five annual meetings have conclusively demonstrated. The local associations should adopt a rule forbidding any attempt to force them into the national body, for in that body, with its speculative atmosphere, they would at once lose all their vitality and reason for existence. Organize, by all means, but do not be forced into a moribund organization that is masquerading under false colors.

"THE full value to Manitoba of a competing railway to the south will never be secured until the United States decides to admit wheat free of duty. Then Manitoba dealers would be able not only to ship via Duluth and Minneapolis, but also to sell their grain in these markets. That the United States Government will see the wisdom of admitting wheat free is not at all unlikely. Manitoba

wheat is a raw material which Minneapolis millers want, and its admission into their country free of duty would materially assist their great flour industry, while it would in no way reduce prices to farmers in Minnesota and Dakota. The admission of Manitoba wheat into the United States free of duty would therefore be a mutual benefit to both Manitoba producers and Minneapolis millers, while it could not injuriously affect any United States interest." Thus writes a hopelessly hopeful correspondent of our esteemed Toronto cotemporary, "The Dominion Mechanical and Milling News." Of course that hopeful person has not the least reason in the world for his assertion concerning the probable tariff action of the United States on Manitoba wheat. He and all other Canadians may as well accept the truth at once. Not more, but less, Canadian products will in the future be admitted free into the United States. The northern farmers are opposed to free Canadian wheat, and so long as they are growing a surplus ranging from 60,000,000 to 180,000,000 bushels of wheat a year they are not willing to call even so small an amount as Canada's surplus to their market. All the interests of the United States do not center in Minneapolis, and we advise our hopelessly hopeful Canuck friends to put that Yankee fact in their pipes and inhale the resultant smoke in cigarette-fiend fashion.

FROM some observations in the editorial columns of THE MILLING WORLD, an outsider might think that the banquet at the Plankinton House given by Milwaukeeans in honor of the millers attending the December meeting here was a sort of "high-toned drunk." It is needless to say that the editor of the above-named journal was not present or he certainly would not have made any unpleasant reflections in his paper. The banquet was as decorous as any ever given anywhere, and it was a matter of remark that so little wine was drank. We are sorry that the Buffalo editor was not present on that occasion, and still more so that he should have been so falsely informed of the facts in the case. Milwaukee is noted for its hospitality, but does not deem it necessary to show it by providing an unseemly flow of liquid refreshments on such an occasion. The editorial insinuations of THE MILLING WORLD are certainly insulting to not only the givers of the banquet, but to those who partook thereof.—*The United States Miller*. Only an imbecile inebriate could contort or distort the utterance of THE MILLING WORLD to mean any such thing, neighbor. There has not been in these columns one single insinuation of the sort to which you allude. We have consistently praised the banquet and have neither said nor insinuated nor known that there were any features of a "high-toned drunk" about it. As to the "givers of the banquet" or "those who partook thereof," we do not think they need any defense from alleged or imaginary insult by you, neighbor. Be sure of your ice before you buckle on your skates and strike out on a curve to larboard. Offering defense against supposititious insinuations, especially in cases where the alleged offended ones have not complained and are able to defend themselves, invites the suspicion that the self-appointed defender is afflicted with hebeticulous, rhombocephalic crankism.

The Canton Cabinet Filing Case Company, Canton, Ohio,

MANUFACTURERS OF

The New Buckeye Document Case & Letter File; Also All Kinds Office Furniture



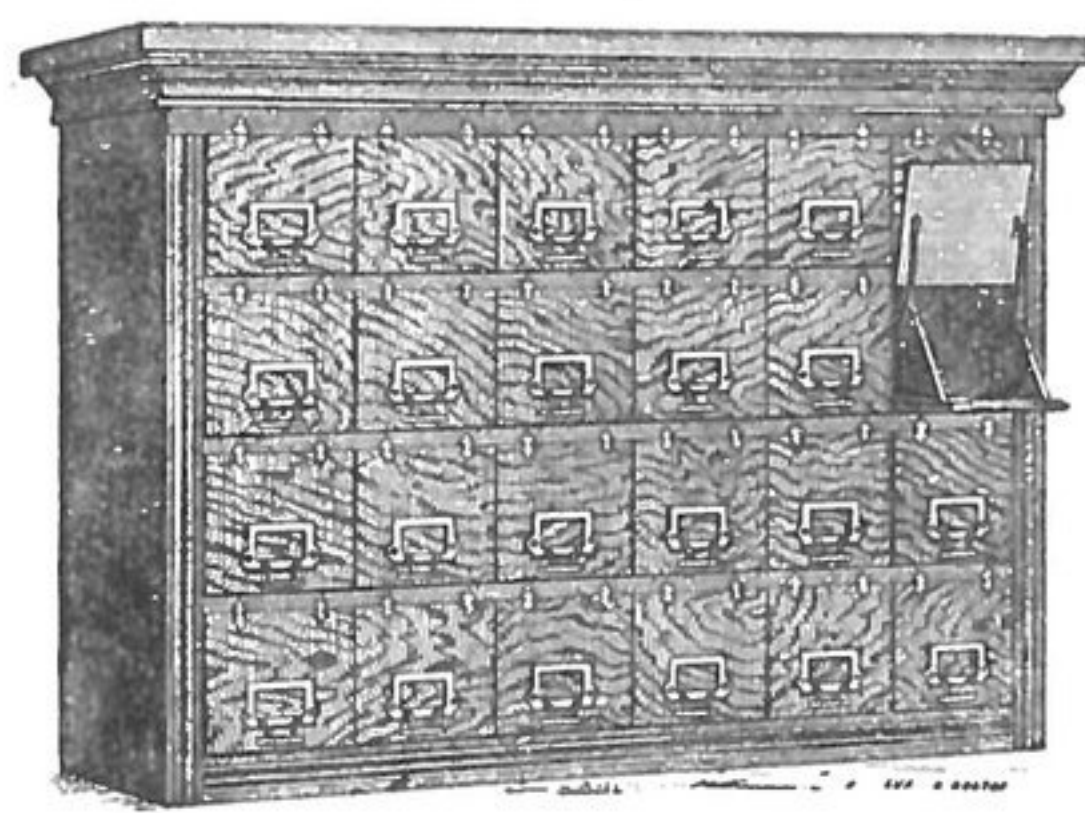
NO. 8.

NO. 8 Represents one side of one of our Revolving Cabinet Letter Files and Document Cases Combined. It contains 30 Document Drawers and 8 Letter File Drawers. In filing letters we use first VOWEL of name on front of drawer, and LETTER FOLLOWING first VOWEL on Index Sheet within drawer. We also make more exhaustive systems which contain from 6 to 100 or more Filing Drawers.

NO. 1 Represents one of our small Document Cabinets, for use on desks or brackets. Action of drawer can be seen in the cut. When front is raised inner drawer comes forward, exposing contents of drawer for inspection.

Our Cabinet Files are Conceded to be the Most Convenient of Any in the Market. They are Compact, Simple, Complete, Durable and Ornamental.

SEND FOR PRICE LIST AND CATALOGUE.



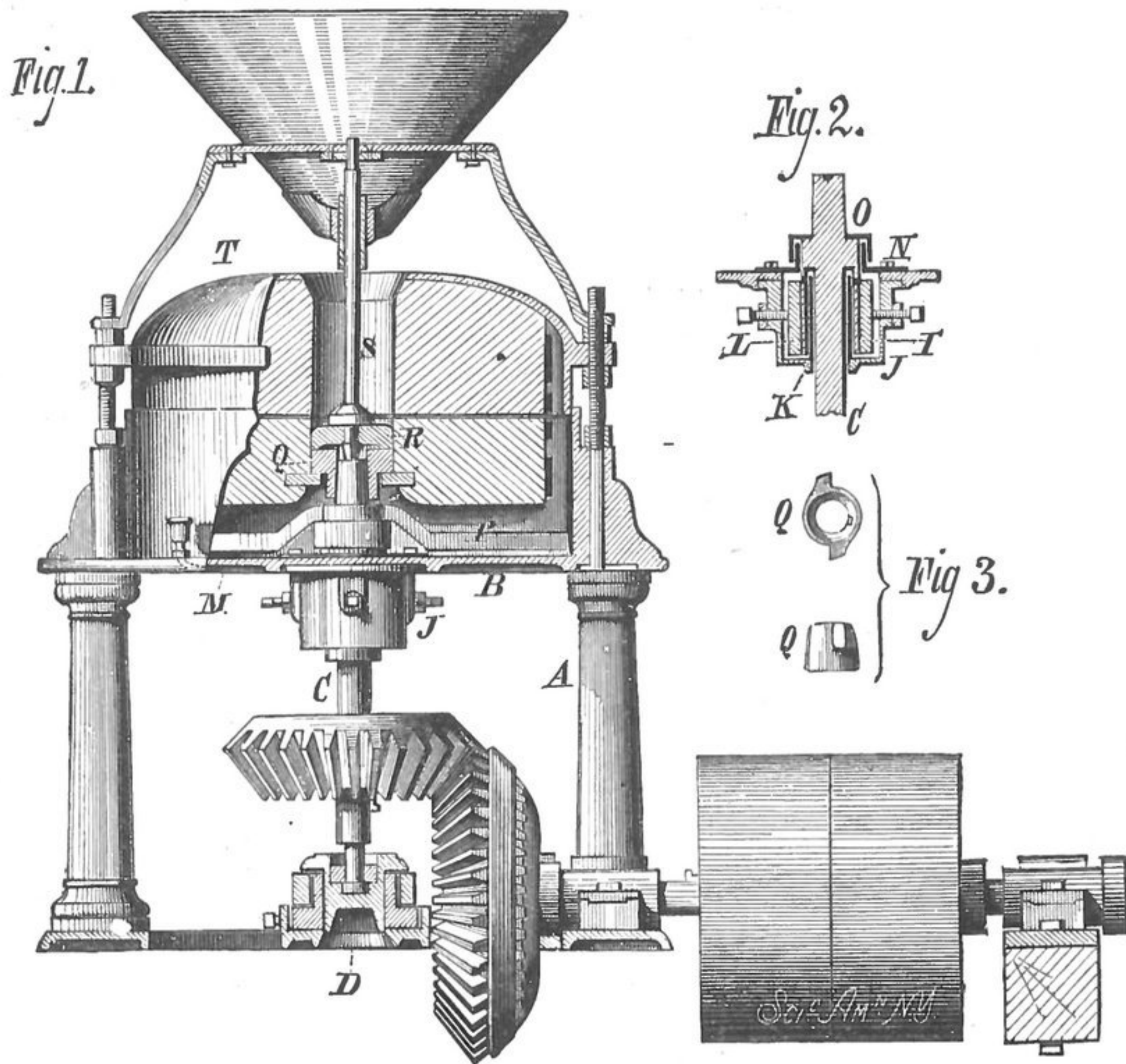
NO. 1.

MUNSON'S PORTABLE MILLS

With all of the Latest Improvements. Indorsed by the Best Mechanical Experts and Engineers. Every mill warranted; Every mill fully inspected: Every mill placed on its merits; Satisfaction guaranteed. Thousands in use; Best of references given.

IN USE BY THE LARGEST CORN GRINDERS IN THE WORLD.

MUNSON'S PATENT SPINDLE.
MUNSON'S PATENT EYE.
 IMPROVED BUSH AND COLLAR,
 CURBS, SILENT FEEDERS, ETC. ETC.



DOUBLE GEARED WITH COUNTER-SHAFT,
 Tight and Loose Pulleys,
 BEVEL SHELL WHEEL & PINION.
Write Us for Prices and Discounts.

Munson Brothers, Utica, N. Y.

C. H. BIRD & CO., KALAMAZOO, MICH.

MANUFACTURERS OF PATENT

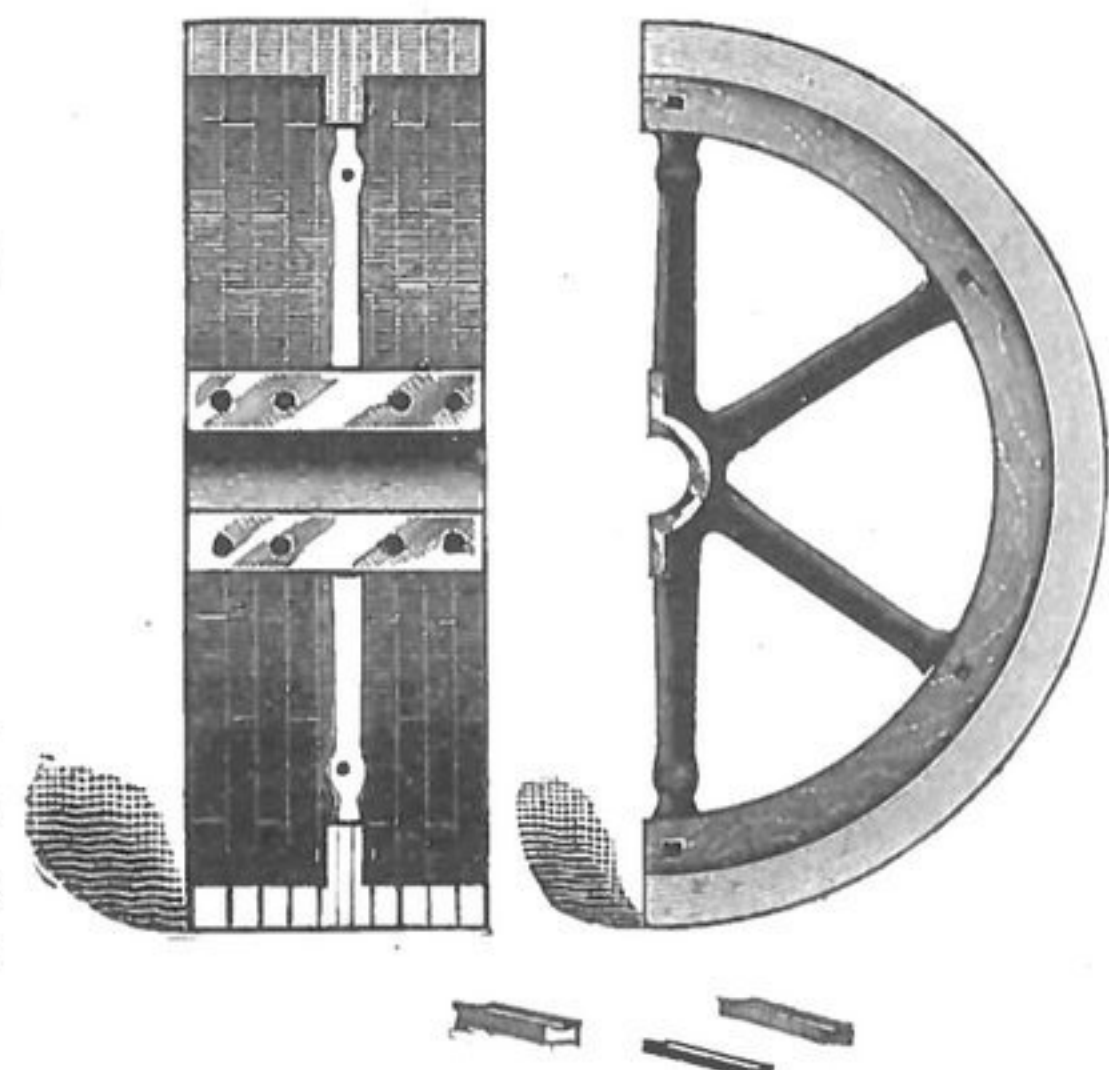
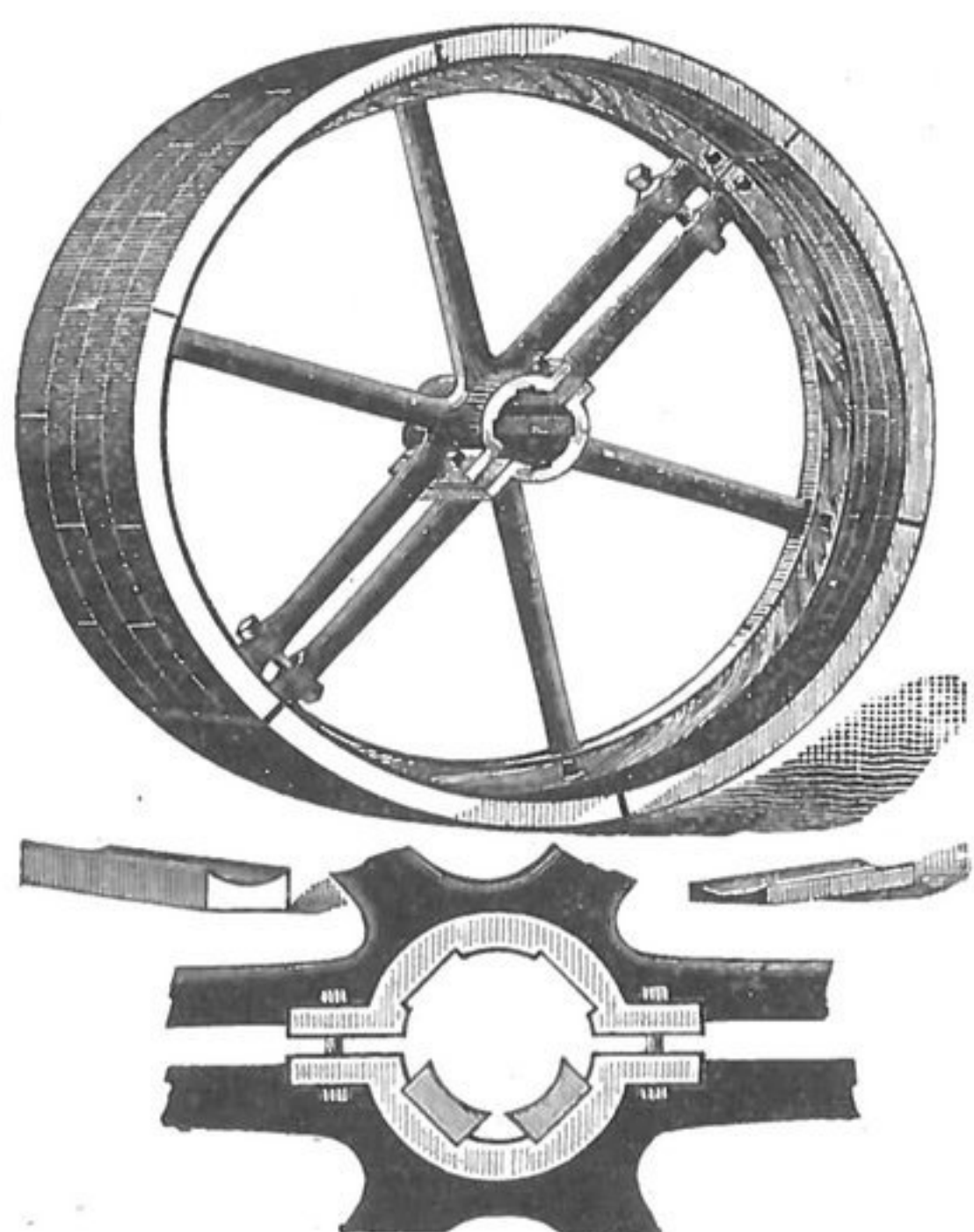
Wood Split Pulleys

WOOD RIM WITH IRON ARMS.

The Best Pulley on Earth!

Is very easily and quickly adjusted to Shaft. Has Patent Iron Bushings Interchangeable, to Fit Different Diameters of Shafts. Has FOUR or SIX Bearings on Shaft. This fastening never slips. Every Pulley strongly built and perfectly balanced.

SEND FOR CATALOGUE AND PRICE LIST.





PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Over Bank of Attica.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS MC FAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.
To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.
Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application.
Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.
Orders for new advertisements should reach this office on Friday morning, to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trades.
Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.
This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD,
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

WANTED.

A situation in a mill, by a married man of steady habits; 34 years old; no children; had three years' experience in a custom mill; can furnish best of reference. Address, CHAS. BETTIS, Forestville, N. Y. 24tf

SITUATION WANTED.

By a practical miller; either stone or rolls; twenty-five years' experience. Will work on salary. Would rent a good mill or buy an interest in a good mill. Can give the best references as first-class. M. V. STRAIT, Howard, N. Y. 2225

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

FOR SALE AT A BARGAIN.

A good 100-barrel roller mill in Western New York. Good reasons for selling. For particulars address, "E," care of MILLING WORLD, Buffalo, N. Y. 2326

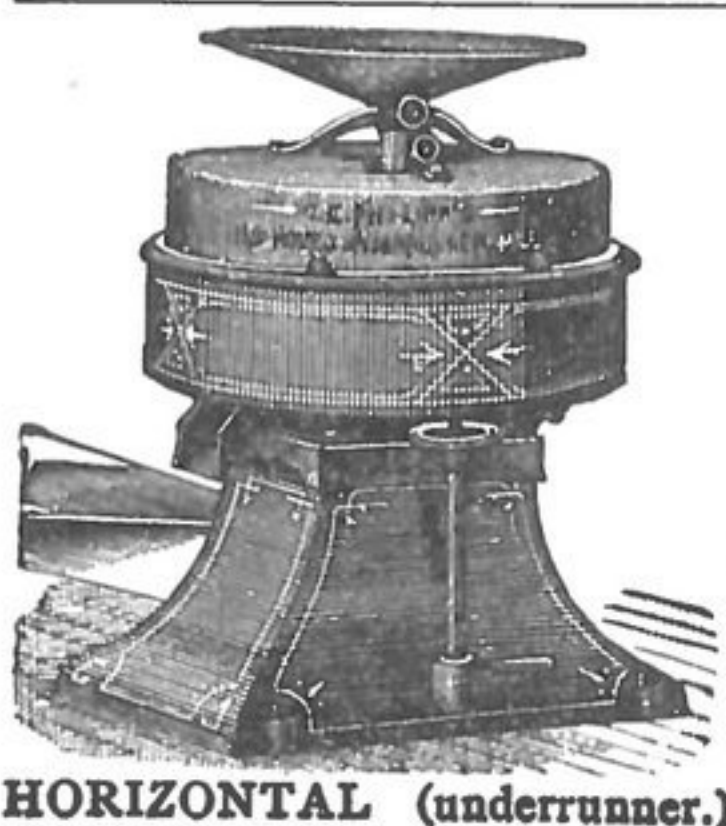
SAFE BUSINESS INVESTMENT.

A party owning flouring mill, with modern most approved machinery, doing large, profitable, local and merchant business, well established, located in growing city, population 12,000, Western New York, desires to associate more active capital. Correspondence solicited. Address, BOX 787, Waukesha, Wis. 18tf

FOR SALE.

- 10 Single Sets 9x30 Stevens Rolls.
- 2 Single Sets 7x12 Ferriers Rolls.
- 2 Centrifugal Reels.
- 2 No. 3 Niagara Bran Dusters.
- 2 No. 3 Prinz Dust Collectors.
- 1 No. 4 Hunter Purifier.
- 1 No. 6 Garden City Purifier.
- 1 No. 1 Pyne Purifier.
- 1 No. 3 Richmond Brush Machine.
- 1 No. 2 Silver Creek Scourer.
- 1 No. 60 Becker Brush Machine, over 50 Run Millstones all sizes, all complete.

Above Machines are in first-class condition and practically as good as new. Address J. B. DUTTON, 115 E. Fort Street, Detroit. 18tf



If you are desirous of obtaining the best Mill or Cob Crusher, send for our catalogue and be convinced that our's fill the bill. Can not fail to please you. They are guaranteed to prove as represented.

C. C. PHILLIPS,
OFFICE, 20 SOUTH BROAD STREET,
PHILADELPHIA, PA.

MILL MACHINERY FOR SALE.

One 24-Inch Portable Mill, wood frame, capacity 15 to 20 bushels per hour; new, best make.
One 20-Inch Portable Mill, iron frame, capacity 12 to 16 bushels per hour; new, best make.
One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
One 18-Inch Vertical Portable Mill, French Buhr Stone, hung on horizontal shaft; capacity 25 to 40 bushels per hour; new, best make.
One 14-Inch Vertical Feed Mill; best make, new, a bargain.
One No. 6 Dustless Separator; new, a bargain.
Two No. 4 Scientific Grinding Mills, capacity 40 to 50 bushels per hour; new.
A Lot of Elevator Buckets, brand new, best make, any size desired, very cheap.
One No. 1 Full Rigger Combined Dustless Separator; new, a bargain.
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

FOR SALE.

Three-run mill, repaired, and a first-rate dwelling house, built last summer. I don't owe one dollar, but will sell cheap for cash, to build a mill in Forest county. Address J. S. PORTER, Lamartine, Clarion county, Pa. 2225

FLOUR MILL FOR SALE.

Water power custom and merchant mill; 2-run 4½-feet buhrs, well fitted up; doing large business; 52 miles from New York; close to depot; good reasons for selling. JOHN ORR, Mountainville, Orange county, N. Y. 2225

RECENT experiments made in Canada and Minnesota in sowing frosted wheat are recorded in another column. Readers who are inclined to believe that those experiments indicate that frozen seed is, after all, reliable, will do well to remember that the experiments are made under conditions that are not possible on large wheat-farms. The professors work in greenhouses, artificially heated, not on outdoor tracts subjected to winds, cyclones, waterspouts, floods, drouths, insects and other farm concomitants. If the average Canuck or Yankee farmer in the Northwest can cover his farm with glass and secure immunity from climatic drawbacks by steam-heating, he may do as well with frosted seed as the professors are doing. At the same time, common-sense dictates the abandonment of all attempts to force defective seed on the Northwestern wheat-fields. The experiments mean absolutely nothing until they have produced a matured seed. The quality of that grain would decide the question.

SOME of our esteemed milling cotemporaries are complaining because a paper published in Minneapolis is misrepresenting the milling press in connection with the recent Milwaukee millers' meeting. Let them rest in peace. The Minneapolis paper in question has no power to harm or help any real milling journal in the land. That paper may brag, bray, lie and bluster until it becomes as nauseated with its own egotistical flapdoodle as those who see it now are nauseated, but, as it reaches very few millers, it can not harm the real milling journals in the estimation of the men who make flour and who do not care for an egotistic sheet devoted more to the interests of the speculators than to any other thing. Let that journal assume all the credit as well as the discredit for the Milwaukee fiasco and for the equally perfect fiasco of the meetings of the National Association for several years past. No one outside of a Minneapolis one-horse fool asylum is weak enough to care a rush for the egotistic vaporings of the Minneapolis tin god riding on the apex of his own ceaselessly oscillating jaw.

PRIME writes conservatively on the winter wheat prospects, but he says privately that the winter wheat can not stand any considerable siege of cold weather without very serious damage—such weather as we are now having. We are now getting into a period of "weather markets," and the crop may be killed a dozen times before June and still pan out fairly well.—*Chicago Daily Business*. Say, Neighbor Biz, never mind what Prime says. Whether he writes conservatively or enthusiastically, it is all the same. Those who were unfortunate enough to hear his bilious jeremiad on the crops of 1888, at the Buffalo convention of the Millers' National Association in June last, do not care a single microscopic mill-dam for what he says, either in print or in private. If his present ideas are based on the same sort of information as his ideas of last June were based on, he knows less of the condition of the winter-wheat crop than any other man pretending to be able to tell No. 1 Hard Wheat from Connecticut shoe-pegs. Don't bother the public with Prime's ideas. Life is too brevitous at both extremities.

THE "KEYSTONE" HULLER AND PEARLER.

Millers who use this class of machines will be interested in the new huller, pearler and degerminator illustrated in the accompanying engraving. This machine has only recently been placed on the market, but, although new to the public, it has been in use and has undergone a series of practical and varied tests sufficiently long to convince the manufacturers that it will win its way into every corn-mill on its merits alone. The sharp competition that has existed in the hominy or germless meal trade the past few years has caused the millers to seek means to reduce the cost of manufacture and to adopt economic methods and machines. The loss that attends the numerous separations and purifications employed to remove the particles of germ, black-chit and bran attached to the hominy after leaving the hominy machine and intermingling with grits and meal in subsequent reductions, has caused much experimenting and speculation on the part of progressive millers. The want of a machine that would free the flint from bran, black-chit and germ particles at one operation, without the great loss of minute particles of flint that usually passes off with the germ feed or goes into second hominy to be made into second-grade goods, has long been felt by the trade. The "Keystone" huller and pearler is the result of many years' practical application and research on the part of an expert corn-miller, with a view to simplify corn-milling by removing the bran and eradicating the black-chit from the grain before breaking or splitting it to remove the germ, thus producing but a small amount of fine particles or fine hominy, and that of such a quality as to be used for making grits. The offal from this machine is of a different character from that of the usual germ feed or hominy chop. The particles, being disintegrated by abrasion instead of concussion, are not oily, but sharp, and can be separated on a fine cloth making a good grade of family meal and leaving as a residuum a fine bran. The inventor has not only accomplished this in the "Keystone" huller and pearler, but has produced a machine that is continuous in its action, not unlike an ordinary wheat-scouring machine; it runs light, requiring but a nominal amount of power to drive it; it is also adjustable while in operation to suit grain in any and all conditions, thus assuring even work and the maintenance of standard grades. The machine is based on scientific principles and is simple, compact and durable; it contains no knives or teeth to sharpen or replace and is always in order, in fact it is the acme of simplicity. Address the manufacturers, the J. B. Allfree Company, of Indianapolis, Ind., for catalogue, price-list, samples of work and all desired information.

POINTS IN MILLING.

DON'T expect to start your mill on January 1 on a certain plan and run it on that plan every day till December 31. It can't be done successfully. In February you will find a certain grade of wheat behaving in a certain way and requiring certain treatment. In June that same wheat will show another mood and require another treatment. Make your system of work to meet requirements. Treatment that one day will produce broad bran may produce the opposite the next day. Roll adjustments that may answer every purpose in the morning may need changes before noon. No iron-bound cut-and-dried method can be made to spread over a year, or a month, or even a day. Wheat grains are sensitive to every change in the degrees of heat and moisture

about the mill. The miller who is a thoroughbred will understand that sensitiveness and work accordingly.

RIGID, inflexible, will-not-change-on-any-account millers find in wheat of the 1888 crop a grain that bothers them. The quality of the grain is below the average somewhat. It requires more care in the breaks. It makes more low-grade. It calls for more break rolls and for more smooth roll work at the tail to care for extra material there. Therefore the rigid-rule miller who did very well on 1887 grain finds something in his way as he handles 1888 grain. He must bend his system or method of grinding to meet new conditions.

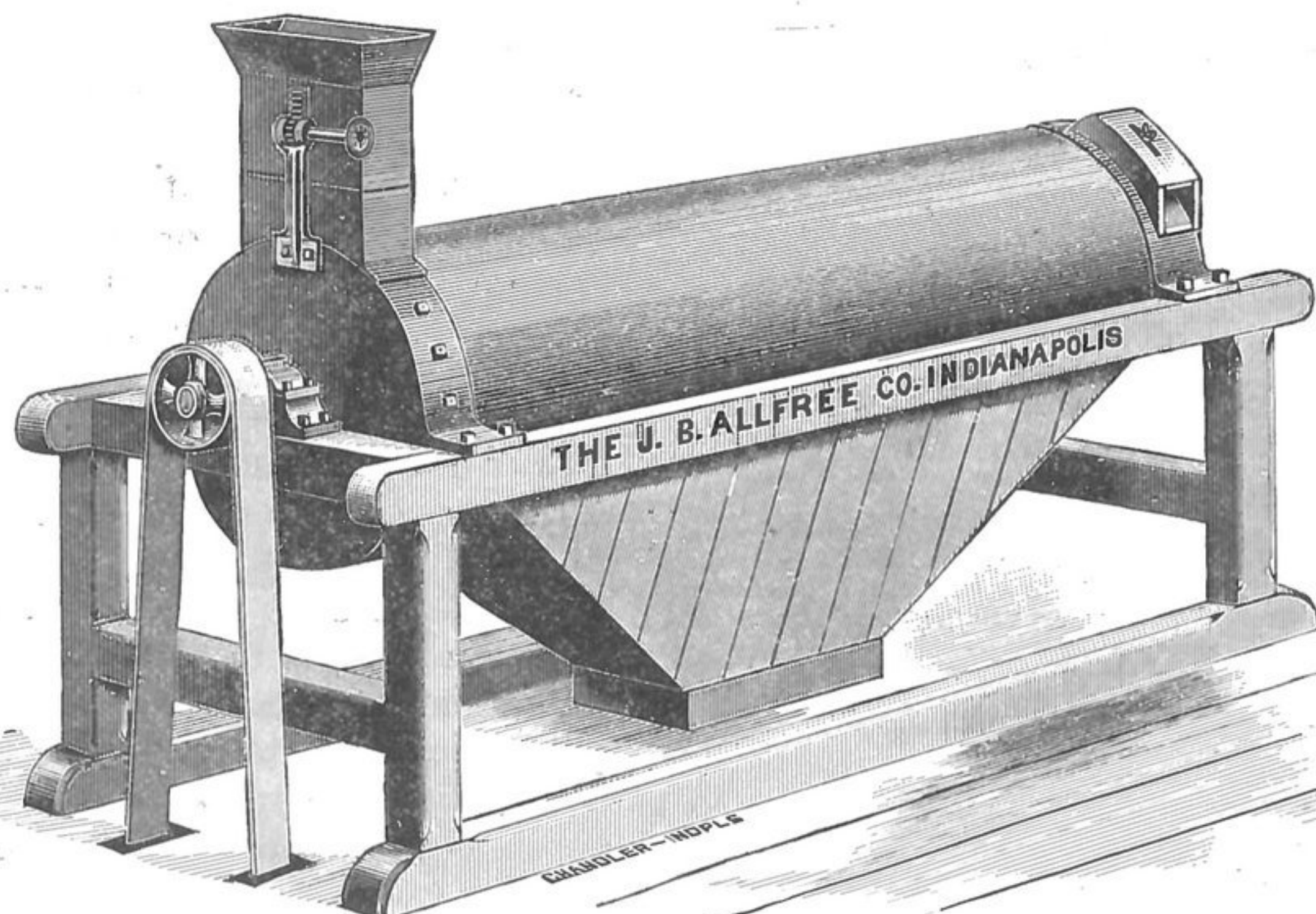
AMERICAN millers are not alone in being troubled with the wheat of this crop. French wheat can not be ground alone at all, according to recent accounts. It requires an admixture of at least 25 per cent. of dry American or other wheat to make it grindable at all. Even the vaunted Russian wheat is showing decidedly inferior quality on closer acquaintance. British wheat is of a very poor grade indeed. Thus it seems that the American miller, working grain that has been called "the very worst ever grown in the United States," has still a grain that is better than the best that is obtainable by the millers of other countries. I venture to say that the millers of the United States, Canada, Great Britain, France, Germany and Austro-Hungary, after grinding the crop of 1888, will be better millers in some respects than they were before grinding that crop. They will have learned much about the possibilities of wheat grain and they will have learned many new kinks in grinding that they were not forced to learn while grinding fine wheat of high grade.

THE inventors continue to turn out on an average about one automatic grain-scale a day. They are misapplying their genius. No more grain-scales are needed. There are enough good ones in existence now to weigh all the grain that could be grown on all the worlds in sight. What

the millers need and what they long for are machines that will extract the crease-dirt, which has been abolished by pen-strokes occasionally, but which still insists on existing; that will clean with absolute perfection; that will break just as they should break the wheat; that will run without heating, choking or clogging; that will increase the yield and the quality, and that will waste the least possible amount of the valuable portions of the berry. Millers can worry along in some way with the present weighing facilities, but they admit that there are yet many things remaining to be bettered in flour-making machinery.

BROAD bran and even product are two unfailing signs of good and thorough work. Aim to secure these two points and you will secure a "system."

How things change and change! The "short system," that two years ago was ridiculed as "a short cut to bankruptcy" and as every thing else base and deceptive and destructive, is now accepted as an achieved system that has won a position from which it can not be forced. It must amaze the elaborate "longs" to see the success of the "short" mills, as they go on grinding and selling their product in direct competition with the product of the "long" mills. The journals that in the highest degree deserve to be called milling journals, that have given the short system a fair show, and that have not been forced by their positions to oppose



THE "KEYSTONE" HULLER, PEARLER AND DEGERMINATOR.

it simply because it was not in the interest of certain firms to see it succeed, have done much to establish the short system on a solid basis, and they deserve credit for their aid. I hope to see Mr. Abernathy's new book sold everywhere, as it is the best authority on the subject of short-system milling. He had the judgment to see that he had hit a good thing, and he has had the pluck, the brains, the energy and the decision of character to go on and put it into practice, and he has forced the opponents either to admit that it was good or to confess their malevolence and ignorance by denying success to a plainly successful movement.

TESTING FROZEN NORTHWESTERN GRAIN.

Canadian boomers, who last autumn were declaring that frozen wheat was "just as good for milling and seeding as unfrozen wheat," thus attempting to belittle the terrible infliction of the frost in Manitoba in August, will find something to interest them in the report of Wm. Saunders, the director of the Central Experimental Farm, who has been testing some of the frozen Manitoba and Northwest Territory grain. In a communication to a Toronto, Ontario, paper he says:

I desire to submit to your readers a summary of the results of the first fifty tests of frozen grain sent to the Central Experimental Farm by the farmers of Manitoba and the Northwest Territories for the purpose of ascertaining the suitability of the samples for seed. These consisted of wheat 41, barley 5 and oats 4. The wheat varied in germinating power from 21 to 99 per cent.; 13 of those of lower grade were found to produce so feeble a growth in the soil as to be unfit for seed, no matter how large the quantity sown. Five samples which showed over 90 per cent. of vitality have been returned as good for seed when sown in the usual quantity, and the remaining 23, which range in vitality from 66 to 89 per cent., have received a qualified recommendation. On an average three-fourths of the plants produced from these latter samples made fair growth, the other fourth weak growth. The use of such seed is not without risk, but should the season be favorable, it is likely that in the fertile soil of the Western prairies many of the weakly plants would eventually become strong. It would, however, be wise in using such seed to sow a larger quantity per acre than is customary, to compensate for the loss of vitality. Of the five samples of frozen barley tested, two germinated in the proportion of 15 per cent. only, the others 47, 65 and 97. The last named was a good sample for seed, and the only one of the five which it would be safe to use. The two of lowest grade were worthless for this purpose. That which germinated in the proportion of 47 per cent. had about one-fifth of the plants very feeble, while that which showed 65 per cent. produced only 25 plants which made fair growth and 40 weakly ones. The four samples of oats ranged in germinating power as follows: 9, 53, 67 and 70 per cent. The two of lower grade were found to be quite unfit for seed the other two showed a fair growth with but few feeble plants and would be likely to produce good results with a favorable season if thickly sown. It is probable that these samples fairly represent the quality of the seed held for next year's sowing by the farmers in those districts in Manitoba and the Northwest Territories which have suffered from early frosts. If this be so, then nearly one-third of the farmers settled in those localities are unprovided with seed fit for sowing.

Minnesota boomers, not to be in rear of the procession, are also experimenting with frosted Dakota and Minnesota wheats. A dispatch from St. Paul, Minn., dated February 1, gives the following report of the experiments that are being conducted in that State:

The experiments that are being carried on at the State Experimental Farm with frozen wheat are attracting the attention of the leading grain men of the State. The results of the experiments thus far have been surprising. About thirty samples of frozen or frosted wheat of all grades, from about No. 3 down to the poorest sort of shriveled, shrunken, frozen grain, have been employed for the tests. Fifty seeds of each were selected and planted and are growing in the greenhouses. Each sample is labeled and account is taken of the proportion of seeds in each class that germinate and grow. The visitors found this proportion large. Some of the seeds were about the next thing to mere chaff, and yet many of them have sprouted and, as a rule, seem to be having a healthy growth. The stalks are now six or eight inches high and some of them are stooling out. It remains to be seen whether they have sufficient vitality to mature. The experiments up to the present point have been very encouraging.

Let the boomers remember that these tests were made under conditions far more favorable than they can possibly

secure for their grain sown on Dakota, Minnesota, Manitoba and Northwest Territory farms. On either side of the border it would be well, in all possible cases, to sow unfrozen wheat, even when the trouble and expense of securing it are very great. The farmer who sows frozen grain, whether he live in Dakota or in Manitoba, runs a risk and invites disaster. The proposed Minnesota plan of aiding the farmers to secure good seed for 1889 seems to be the wiser plan. The farmers can not afford to waste time and run risks in planting frozen seed. Grain that may grow very nicely in specially fertile soil, in green-houses, under forcing and coddling processes may, and probably will, prove an absolute failure when sown on the black soil of the Northwest and subjected to all the vicissitudes of a fickle climate. It is yet to be proved that defective seed can promise perfect maturity, and until that is proved, or even claimed, it would be well for the wheat-growers of Dakota, Minnesota, Manitoba and the Northwest Territory to get the best possible seed and leave a monopoly of the experimenting with frozen or other dubious seed in the hands of the greenhouse professors, where it can do no harm and may prove an agreeable pastime. The farmer who drops his needle in the haystack may never be able to recover it. Let good, sound, perfect, unfrozen seed be the motto for the wheat-growers of the Northwest, both Yankees and Canucks. With safe seed they will succeed.

THE WINTER WHEAT MILLERS IN COUNCIL.

Winter-wheat millers were numerous in Indianapolis, Ind., on Tuesday, February 5. The convention advertised for that date was largely attended. Nearly two hundred millers were present, representing nearly all the winter-wheat States. An informal session was held in the morning to map out the work of the convention and to prepare for a thorough organization. The regular session was opened in the room of the Indianapolis Board of Trade in the afternoon, and all the visiting millers were present. The convention organized by electing Dr. E. T. Noel, of Nashville, Tenn., president, and Editor D. H. Ranck, of "The Millstone," Indianapolis, secretary.

President Noel in a lengthy address spoke of the benefits to be derived by the millers from a perfect organization. He claimed that the proposed organization meant good to all and harm to none, as it would correct the evils and regulate the business of the flour trade in every department. He said the organization did not mean extortion, as many newspapers have falsely asserted, but that it meant only right and equity for the millers. Owing to the gross misrepresentations of merchants and brokers many millers had been forced to meet the markets at a ruinous sacrifice, and he contended that the large and the small operator would be equally benefited by the organization, which aims not at a high price so much as at a uniform price for flour. Both producers and consumers would be benefited by uniform prices, as under the proposed regulation the consumer would be sure that he was paying no more than his neighbor, while the check to speculation that was sure to follow regulation would benefit both producer and consumer. He claimed that organization would protect the people from the wheat-gamblers and enable the millers to make proper terms with the railroads, two things of great importance which can never be secured by individual action and which must come, if at all, through thorough organization, hearty co-operation and perfectly unanimous action.

The plan of proceedings prepared by a committee appointed at the morning session was adopted. The Michigan millers present at first objected to the clause in one of the resolutions referring to the various associations represented in the meeting joining the Central Association and making it the head of the organization. They declared that their state association was in a flourishing condition, and that they were not in favor of abandoning it to become members of the Central Association, as the officers of that association would virtually have the control, and as representatives were not present from New York and Pennsylvania, with which States the Michigan millers have their heaviest trade and most active competition, they would be working under decided disad-

vantages. Their objection was withdrawn when it was announced that all the officers of the Central Association proposed to resign and that the convention would re-assemble on Wednesday under the name of the Central Millers' Association, and that satisfactory arrangements concerning New York and Pennsylvania would be made, and the resolution was unanimously adopted. Mr. J. F. Imbes, of St. Louis, then offered the following resolutions:

Whereas, The millers of the United States have heretofore supplied a large proportion of the flour consumed in Central, South America and the West India islands, including Cuba; whereas, this valuable trade is being greatly reduced and threatened with utter extinction by discriminate duty on American flour; whereas, Spain now exacts a duty on our flour to Cuba of \$42.21 per barrel against only 54½ cents on Spanish flour, this to be reduced to one half that figure on July 1, 1889 and abrogated altogether on Jan. 1, 1890; whereas, legislation pending in the United States Senate and House of Representatives proposes to abrogate the duty heretofore levied on imports of sugar, of which Cuba furnishes the country largely, and, whereas, the conditions on which this exchange of products has heretofore been made are unjust to the United States and will become more aggravated when the changes now pending take effect; therefore be it

Resolved, By the millers of the United States in convention at Indianapolis, Feb. 5, 1889, that the conditions stated be brought to the notice of Senators and Representatives and the State Department, with the urgent request that such reasonable reciprocity shall be demanded as the facts warrant, and, if not conceded, such measures be adopted as may be deemed most effective in the interests of American industry and commerce.

Resolved, That we firmly believe and fully expect that if these facts are plainly and forcibly presented by our government to the government of Spain, that proper concessions in duties will readily be acceded to.

Resolved, That the individual millers and millers' associations of the United States are requested to press this matter on their Senators and Representatives, and that this convention appoint a committee of five leading millers to go to the seat of government at such time as they may select to promote the purposes of these resolutions.

These resolutions were unanimously adopted. At the close of the session it was announced that 17 of the 140 mills represented in the convention had already signed as members of the central organization. Announcement was made that the visitors would be entertained at a banquet at the Grand Hotel in the evening. The convention then adjourned to meet on Wednesday at 9 a. m., in the auditorium of the Y. M. C. A. Building, under the name of "The Central Millers' Association," when the election of officers would take place.

The banquet on Tuesday evening at the Grand Hotel was a most elaborate and enjoyable entertainment. It was given by the Indianapolis millers, manufacturers and local and fast-freight-line agents. Covers were laid for about 200 guests, and the visitors entered the dining-room at 10:30 o'clock, marching to music furnished by Cameron's Orchestra. Editor Ranck, acting as master of ceremonies, eloquently welcomed the visitors to the feast. Mastication and digestion were aided by music, both instrumental and vocal, the latter by the justly famous colored Silvertone Quartet. Mayor Denny welcomed the visitors to the city in a neat and pleasant speech. Judge Martindale responded to the toast, "The City of Indianapolis," C. H. Seybt to "The Millers' National Association," Alex. H. Smith to "The Central Association," and other witty speakers to other toasts. The entertainment ended at a late hour.

On Wednesday morning the convention assembled in the auditorium of the Y. M. C. A. building. The session was devoted to subjects relating to the membership of the association and to the milling interests of the country. A committee, consisting of five members, was appointed to visit Washington for the purpose of presenting to Congress and the State Department the facts set forth in the resolutions of reciprocity adopted on Tuesday. The committeemen were instructed to urge the government to demand such reasonable reciprocity as the conditions of trade seem to demand. The Michigan delegates presented a resolution recommending that all the winter-wheat millers limit their output to 50 per cent. of their capacity during the month of February.

This resolution was adopted unanimously. The association elected the following new directors: C. F. Ballard, Louisville, Ky.; W. H. Davis, Shelby, O.; L. H. Lanier, Tennessee; W. C. Fuhrer, of Indiana; A. J. Meek and Proctor Taylor, of Illinois; C. B. Hoffman, of Kansas; J. B. M. Kehler, Geo. H. Plant and Louis Fusz, of St. Louis, and W. D. Knickerbocker, Albion, Mich.

Election of officers resulted in the choice of the old officers, who are as follows: President, W. C. Fuhrer; vice-president, Louis Fusz; secretary, Alex. H. Smith. The question of the time and place of the next meeting was left unsettled, but the indications point to Columbus, O., as the place and some day in April as the date. The membership of the Central Millers' Association represents a flour-making capacity of at least 30,000 barrels a day, and the prospect is that a large majority of the more important winter-wheat mills will join in the near future. About 135 mills are already enrolled. The members of the association ridicule the idea of a "trust." One Michigan miller, Mr. E. C. Hinman, said: "We have been losing money for the past nine months, and we came together here to find out if we could some means by which we can stop this leakage. All we want is a small living profit. I will keep my mill running night and day all the year round if I can get ten cents profit on the barrel. We are here merely for protection, that's all."

Mr. Alex. H. Smith, of St. Louis, summed up the situation briefly by saying that "on the 19th of November it was agreed among the millers to reduce their out-put one-half until Jan. 1. On that day May wheat opened at \$1.10½ and sold at \$1.11½. On the 1st of December May wheat went to \$1.08½, and on the 15th dropped to \$1.07½, and on the 21st reached \$1.03½. Wheat has continued to decline until to-day it is in the nineties. Flour has declined correspondingly, and the consumer has got the benefit. Nor has the producer been hurt, for he disposed of his wheat early in the season at a low price, and for some months past the product has been in the hands of speculators. The organization will to some extent limit speculation. Prices will not go so high nor so low as heretofore. The millers can say to the speculators that their wheat is too high, and let them hold it. The public need pay no attention to trusts. There are too many mills to warrant the association in selling more than at moderate prices."

CONVENTION NOTES.

Editor Ranck displayed great judgment in providing for the comfort of the visitors and for the successful issue of the convention. He is largely responsible for the meeting and deserves credit for its outcome. His courtesies to visitors were unfailing.

The proposed trip over the Belt railroad was of necessity omitted, as the convention did not close in time to permit the visitors to survey the growing city in all its parts.

Milwaukee and Buffalo will have to elevate their banquet standards if Indianapolis gets another chance to compete in that line.

The Indianapolis meeting had more business and less oratory than the Milwaukee meeting, and consequently the outcome was more satisfactory.

Not a miller present could be induced to admit that he believed a "trust" among the millers possible, probable or desirable.

Many members commented freely on the apparent carelessness of the New York and Pennsylvania millers in regard to the convention and the Central Millers' Association.

The toasts at the banquet were most eloquently handled, and every guest was thoroughly pleased with the hospitalities of the Indianapolis.

One newspaper crank in Indianapolis attempted to inculcate free trade doctrines in a comment on the doings and sayings of some of the millers. The free-trade crank is never at a loss for reasons to thrust his insane views on those who do not care to hear them.

The milling press was well represented in the convention and there was a noticeable lack of the usual toadying to certain bumptious individuals who have a nauseating mania for getting themselves thanked by every convention of

millers. Perhaps, though, those now unthanked individuals will not allow water to flow down-hill any longer, and they will thus get even with a convention that has dared to meet, talk, act, feast and disperse without going through the old-chestnut formula of thanks to them. The offense is dire. The punishment should fit the crime.

AN ANCIENT FLOUR EXPLOSION.

Following is the account of a flour-dust explosion that occurred December 14, 1785, in a flour warehouse in Turin, Italy, as related to the Turin Academy of Science by Count Morozzo: On the 14th of December, 1875, about six o'clock in the evening, there took place in the house of Mr. Giacomelli, baker in this city, an explosion which threw down the windows and window-frames of his shop, which looked out into the street; the noise was as loud as that of a large cracker and was heard at a considerable distance. At the moment of the explosion a very bright flame, which lasted only a few seconds, was seen in the shop; and it was immediately observed that the inflammation proceeded from the flour warehouse, which was situated over the back shop, where a boy was employed in stirring some flour by the light of a lamp. The boy had his face and hands scorched by the explosion; his hair was burnt and it was more than a fortnight before his burns were healed. He was not the only victim of this event; another boy, who happened to be upon a scaffold in a little room on the other side of the warehouse, seeing the flame, which had made its passage that way, and thinking the house was on fire, jumped down from the scaffold and broke his leg.

In order to ascertain in what manner this event took place, I examined very narrowly the warehouse and its appendages, and from that examination and from the accounts of the witnesses I have endeavored to collect all the circumstances of the event, which I shall now describe. The flour warehouse, which is situated above the back shop, is six feet wide and about eight feet long. It is divided into two parts by a wall; an arched ceiling extends over both, but the pavement of one part is raised about two feet higher than that of the other. In the middle of the wall is an opening of communication two feet and a half wide and three feet high; through it the flour is conveyed from the upper chamber into the lower one. The boy, who was employed in the lower chamber in collecting flour to supply the bolter below, dug about the sides of the opening in order to make the flour fall from the upper chamber into that in which he was; and as he was digging rather deeply, a sudden fall of a great quantity took place, followed by a thick cloud, which immediately caught fire from the lamp hanging to the wall and caused the violent explosion here treated of.

The flame showed itself in two directions; it penetrated by a little opening from the upper chamber of the warehouse into a very small room above it, where, the door and window-frames being well closed and very strong, it produced no explosion; here the poor boy already mentioned broke his leg. The greatest inflammation, on the contrary, took place in the smaller chamber, and taking the direction of a small staircase which leads into the back shop, caused a violent explosion which threw down the frames of the windows which looked into the street. The baker himself, who happened to be in the shop, saw the room all on fire some moments before he felt the shock of the explosion. The warehouse at the time of the accident contained about 300 sacks of flour. Suspecting that this flour might have been laid up in the warehouse in a damp state, I thought it right to inquire into that circumstance. I found upon examination that it was perfectly dry; there was no appearance of fermentation in it, nor was there any sensible heat. The baker told me that he had never had flour so dry as in that year (1785), during which the weather had been remarkably dry, there having been no rain in Piedmont for the space of five or six months; indeed, he attributed the accident which had happened in his warehouse to the extraordinary dryness of the corn.

The phenomenon, however striking at the time it happened, was not entirely new to the baker, who told me that

he had, when he was a boy, witnessed a similar inflammation; it took place in a flour warehouse where they were pouring flour through a long wooden trough into a bolter, while there was a light on one side: but in this case the inflammation was not followed by an explosion. He mentioned to me several other instances which I thought it my duty to inquire into. Among them was one which had happened to the widow Ricciardi, baker in this city, where (there being on the other side of the wall of the flour warehouse a locksmith's forge,) the flour was heated to such a degree that a boy who went into the warehouse could not remain there, so much were his feet scorched by the heat; this flour was of a dark brown color, and while the people were examining it sparks began to appear and fire spread itself around without producing any flame, like a *pyrophorus*. He also informed me that an inflammation like the above mentioned had happened at the house of a baker in this city, called Joseph Lambert; it was occasioned by shaking some large sacks which had been filled with flour near a lighted lamp, but the flame, though pretty brisk, did not do any mischief.

THE Michigan crop report for January contains an important investigation into the cost of producing wheat in Michigan during the last five years. The average cost for 1888 was as follows: Southern counties \$13.55 per acre; central \$12.35; northern \$11.53; entire state \$12.98. Deducting the value of the straw and rental from the value of the lands and buildings and dividing by the average yield per acre, the cost of producing one bushel in southern counties was 66c; central 65; northern 57½; state 64. Averaging for five years the same way the cost per acre was as follows: Southern counties \$14.75; central \$13.16; northern \$12.24; state \$14.22. Per bushel: Southern 66c; central 63; northern 60; state 64½.

The claim is often repeated that the wheat situation is bullish in the northwest. None having an understanding of the position can successfully dispute the claim. There are less than 8,000,000 bushels of wheat in country elevators now, against more than twice that a year ago. The difference in the amount of wheat now in farmers' hands below last year's is as great as it is in country elevator stock now and then. About the same holds true with regard to terminal stock.—*Minneapolis Market Record*.

SPECIAL NOTICES.

LIBERAL OFFER.

With a view of increasing our subscription list, we will send a copy of R. J. Abernathey's new book, "The True Short System" (Price \$2.00) and "The Milling World" for one year at the very low price of Two Dollars. Renewal will be treated same way. This offer will only continue for a limited time. Now is your chance. Send in your subscriptions at once.

Address,
THE MILLING WORLD, BUFFALO, N. Y.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.,
Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.

TOLEDO MILL PICKS AND STONE TOOL MFG. CO.

Manufacturer

and Dresser of

MILL PICKS.

Made of the best double-refined English cast steel. All work guaranteed. For terms and warranty, address, GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, Ohio. Send for Circular.
N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF
Shafting, Pulleys, Hangers, Coupling, Machine and
Jobbing, Etc., Etc.



PROPORTION OF AIR TO CAUSE EXPLOSION.—Since the recent explosion of a petroleum vessel in Calais Harbor experiments have been made to determine what proportion of air must be present to form an explosive mixture. With 1 of petroleum vapor to 5 of air no explosion occurs, but when the air is to vapor as 6 to 1, the mixture is feebly explosive and becomes violently so when there is 1 part of petroleum vapor to from 7 to 9 of air. With 12 parts of air it still explodes violently, but with 16 parts it is but feebly explosive, and with 20 parts of air will not usually explode at all.

GENERAL NOTES.

The number of cotton spindles in England during 1887 was 42,740,000; in the rest of Europe 23,180,000; in America 13,500,000; in India 2,240,000; making a total of 81,840,000. The quantity of cotton consumed in England was 1,514,521,000 pounds weight; in the rest of Europe 1,459,119,000 pounds; in America 944,758,000 pounds; in India 300,000,000. It will be seen by these figures that England has more than half the spindles in the world and uses more than half the cotton worked by them.

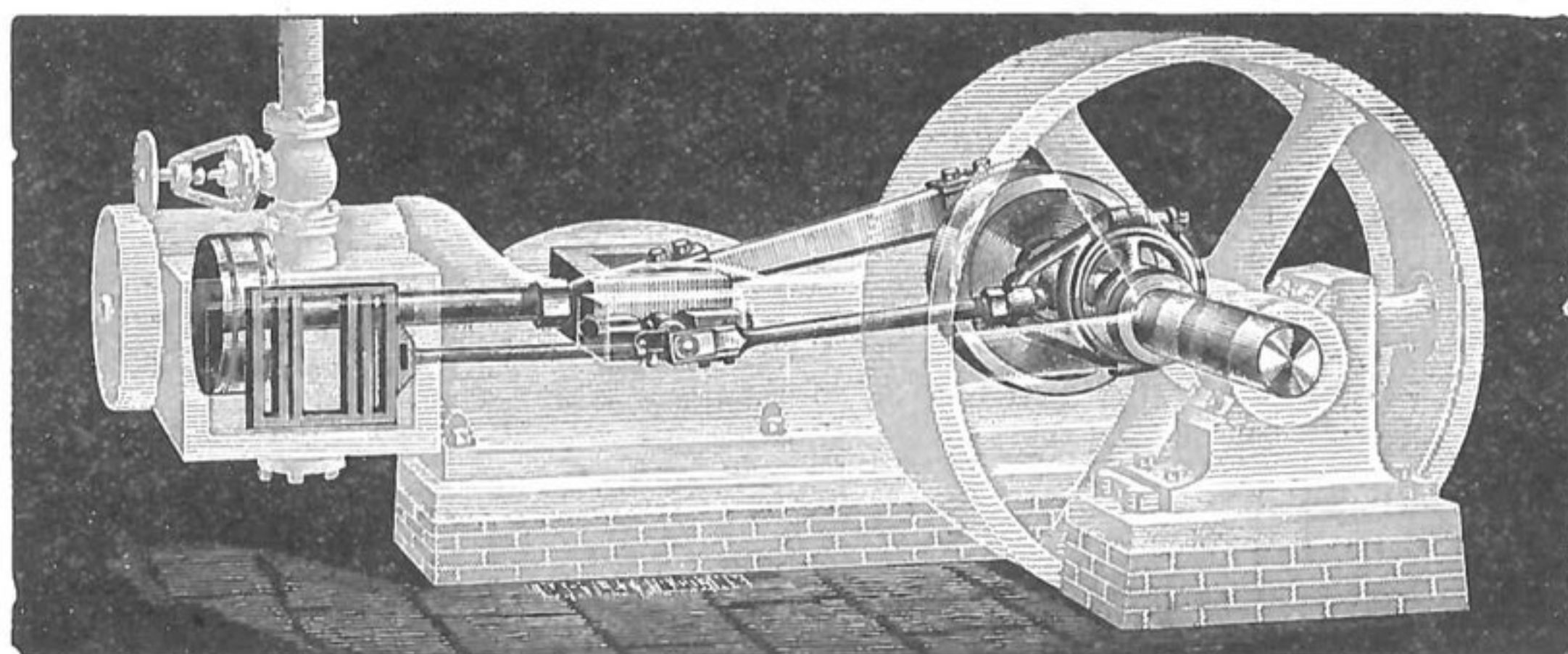
AN EDITOR AND MILLER COMBINED.

Editor Reifsnider, the genial and enterprising proprietor of our esteemed cotemporary, "The St. Louis Miller," has become the owner of a snug milling plant and is now an editor and

millier combined. Recently Mr. Reifsnider has been the victim of some sarcasm by his more or less esteemed cotemporaries, but with that philosophic spirit which characterizes him he has joined in the attempted laugh at his expense and gone steadily on, and now he comes out as the owner of the "El Dorado Roller Mills," located at El Dorado Springs, Cedar county, Missouri. The mill, as shown in our St. Louis cotemporary, is a snug stone building, 33 by 50 feet, and two stories and a basement high. The basement is 14 feet high, with a floor of solid rock, and the flat roof is surmounted by an "8-foot Texas." The motive-power is a 50-horse-power engine and boiler. The mill is fitted throughout with the latest and best of machinery, including separator, scourer, smutter, heater, 2 double sets of Case rolls, 1 double set of Allfree rolls, scalper, Case bolt-ing-reels, centrifugal, Smith middlings-purifier, bran-duster, flour-packer, roller corn-mill, corn bolt and purifier, Hutchison corn-sheller, feed-mill and 20 elevators standing on one line. The storage capacity of the mill is 2,000 bushels of wheat and 1,000 bushels of corn.

The El Dorado was put in operation November 1, 1888, and has been running constantly ever since, without a single change in the programme, and from the day of opening the demand has been large enough to take all the mill can turn out in daylight hours. No competitor is closer than twelve miles, and Editor-Miller Reifsnider is on the high road to milling-millionairism. Success to you, "Dusty Reif." May not the actuality of milling spoil the ideality thereof, and long may you see both profit and poesy in the "clatter o' the mill." May none of your "breaks" be "bad" ones. May your "scalping" be merely properly tonsorial, leaving the tegument intact. May your "system" be long in years, and may your waggish quill still wave like a guiding spirit over the pages of your "Get there Eli Journal."

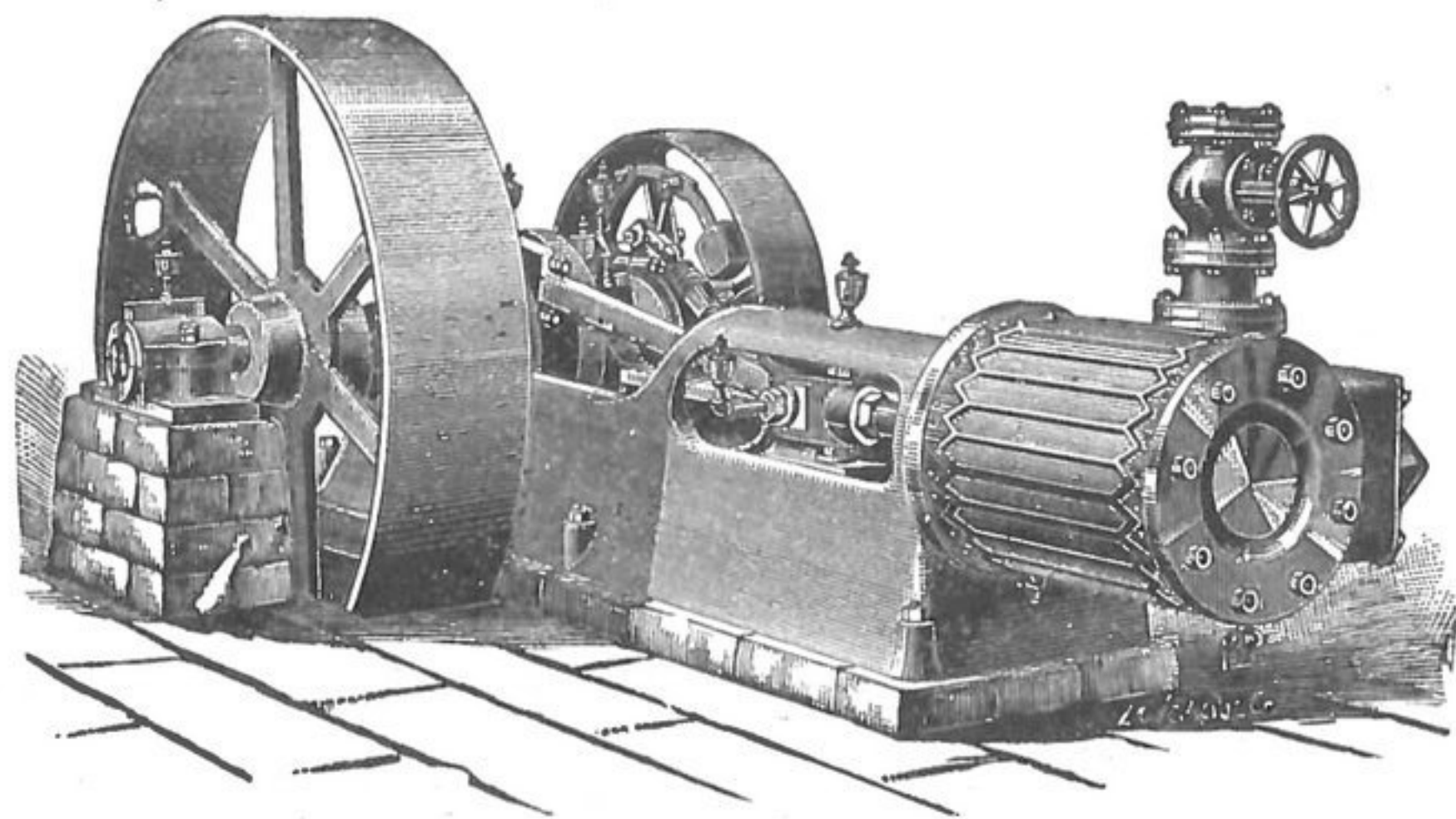
THE NEW PORTER HEAVY-DUTY ENGINE.



The Most Power for the Money, and All Things Considered the Most Economical.
For Illustrated Circular Address,

PORTER MANUFG. CO., LIMITED, SYRACUSE, N. Y.

Economic Power Plants

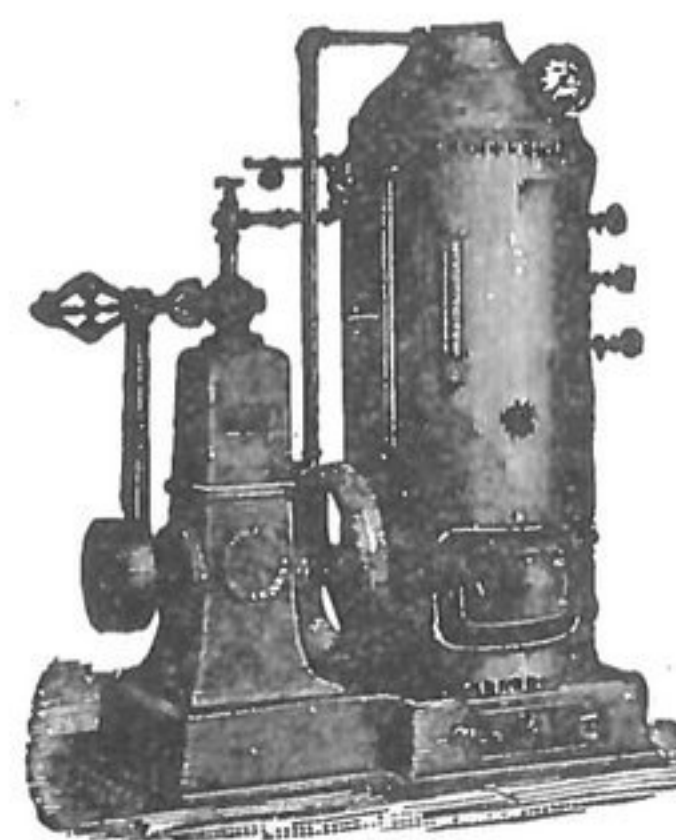


Especially Adapted to Electric Lighting and

WOOD-WORKING ESTABLISHMENTS

MANUFACTURED BY

VALLEY IRON WORKS, WILLIAMSPORT, PENN.



**DURABLE,
ECONOMICAL,
NOISELESS,
SELF-LUBRI-
CATING,
LOW-PRICED.**

One and two Cylinder Engines, with vertical or horizontal boilers, are running 2 years without using a wrench on them.

1 to 15 H. P.

SEND FOR CIRCULAR
TO

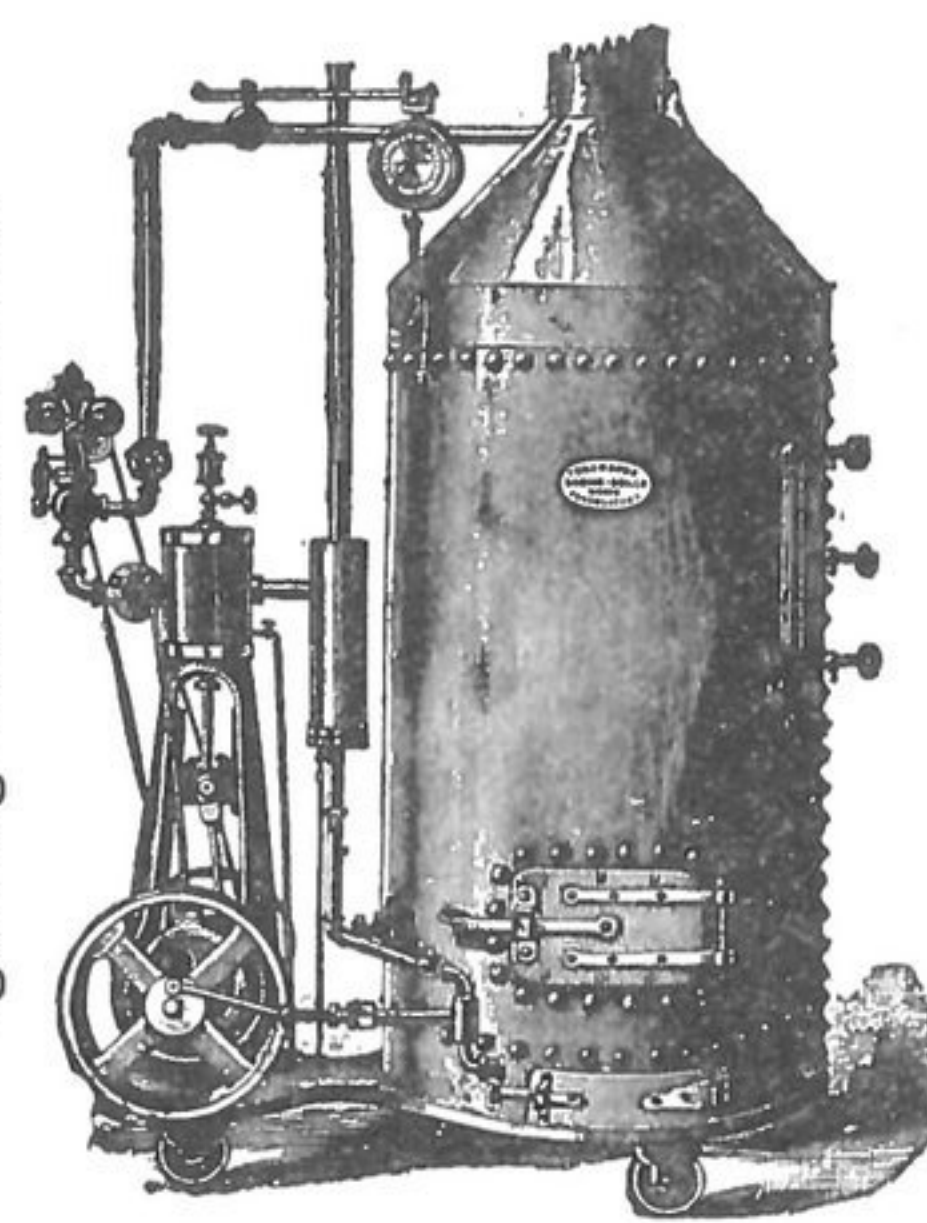
CASTLE ENGINE WORKS

INDIANAPOLIS, IND.

TONAWANDA ENGINE AND BOILER WORKS

A Large Assortment of Machinery.

The Best 6-Horse Power Semi-Portable Up-
right Engine and Boiler Made.



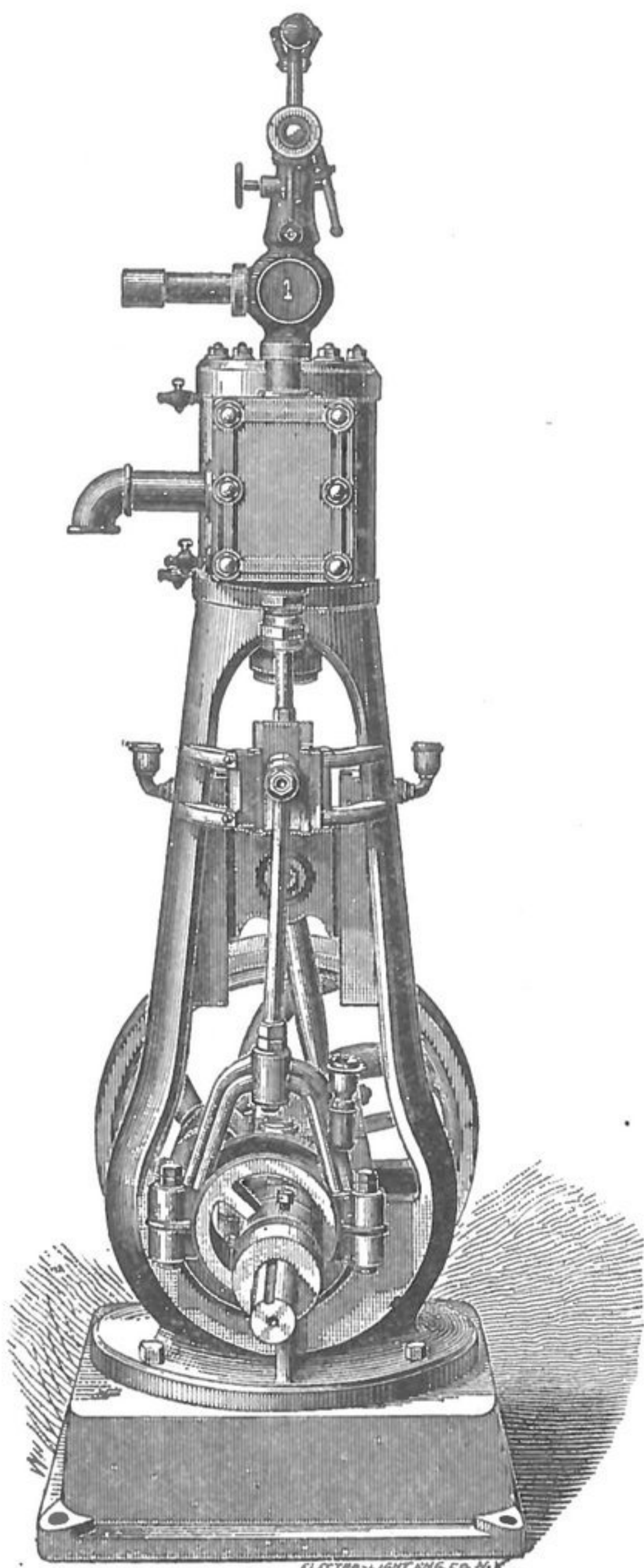
SPECIAL PRICE. GUARANTEED.

SEND FOR CATALOGUE.

ARMITAGE, HERSCHELL & CO.

Tonawanda N. Y.

AUTOMATIC VERTICAL ENGINES



Especially adapted for Small Electric Light Plants. Perfect Regulation. Reversible Link Motion for Marine Use. Five to Fifteen Horse Power. Also manufacturers of

Lathes and Special Tools

Metal Patterns, Models and Machinery Built to Order. Send for Prices and Specifications.

Lloyd & Sterrett

COR. 16TH AND STATE STS.,
ERIE, - - PENN.

We also manufacture the YORK Ice Making and Refrigerating Apparatus.

YORK MANUFACTURING CO.

INCORPORATED 1875.

BUILDERS OF STEAM ENGINES.

TURBINE WATER WHEELS.

VACUUM PUMPS & MILL MACHINERY.

IN GENERAL.

10 NORTH PENN. ST.

YORK, PA.

SEND FOR CATALOGUE.

PAYNE HIGH SPEED CORLISS ENGINE

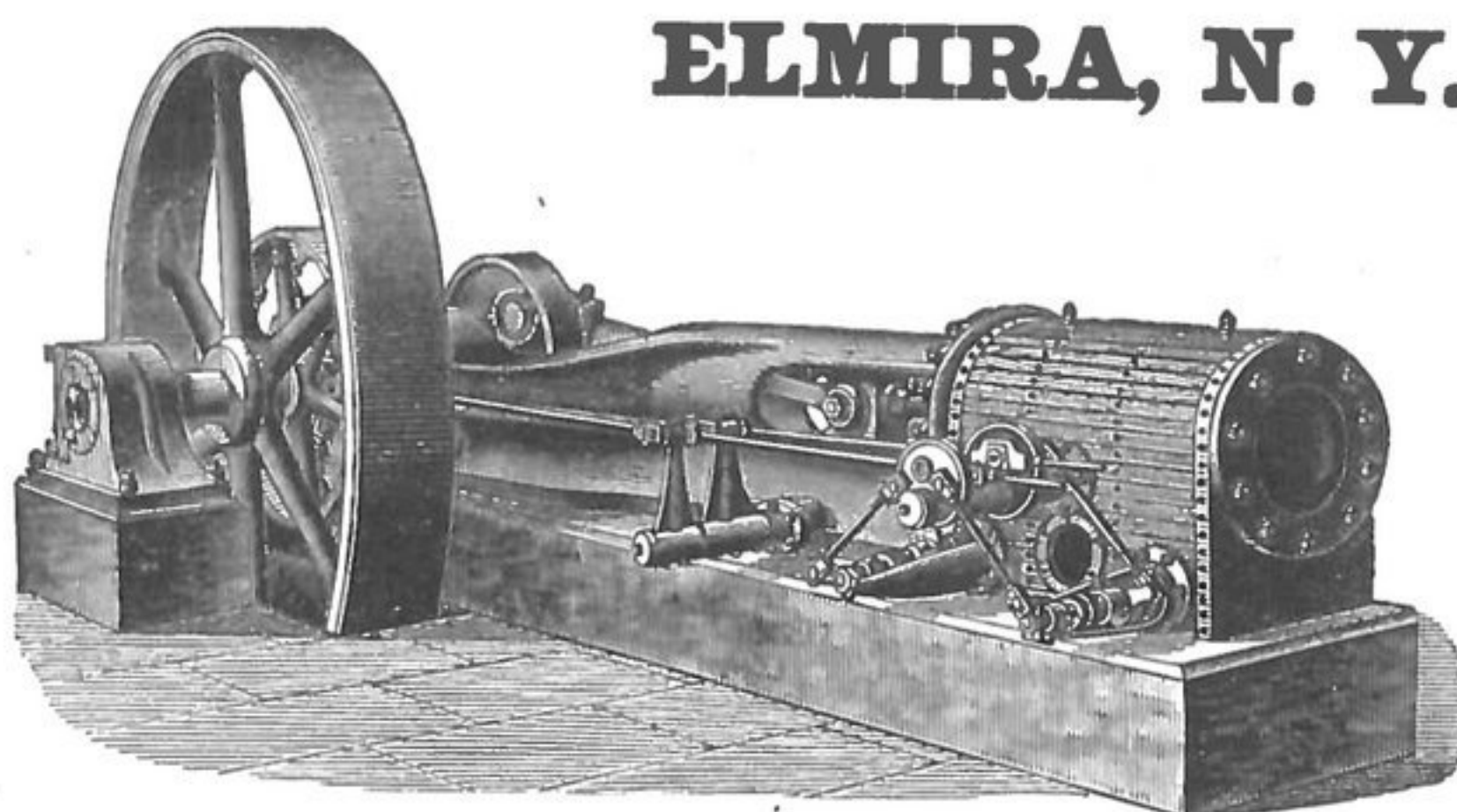
SHAFT GOVERNOR COMBINED WITH CORLISS WRIST-PLATE.

ECONOMY OF FUEL.

REGULATION EQUAL TO ANYTHING IN USE.

B. W. Payne & Sons,

ELMIRA, N. Y.



10 S. Canal Street,
CHICAGO, ILL.

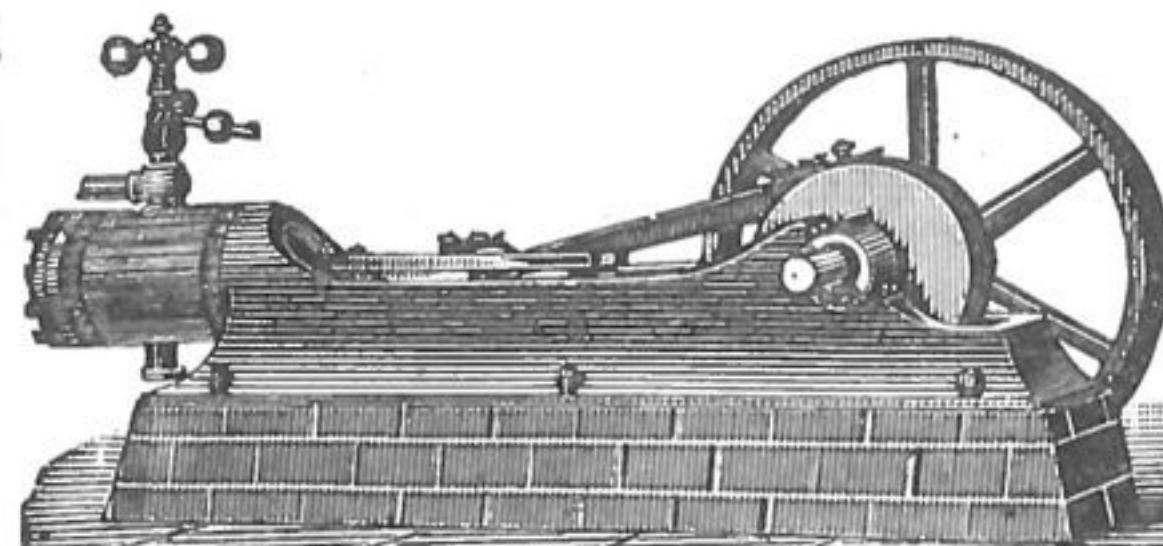
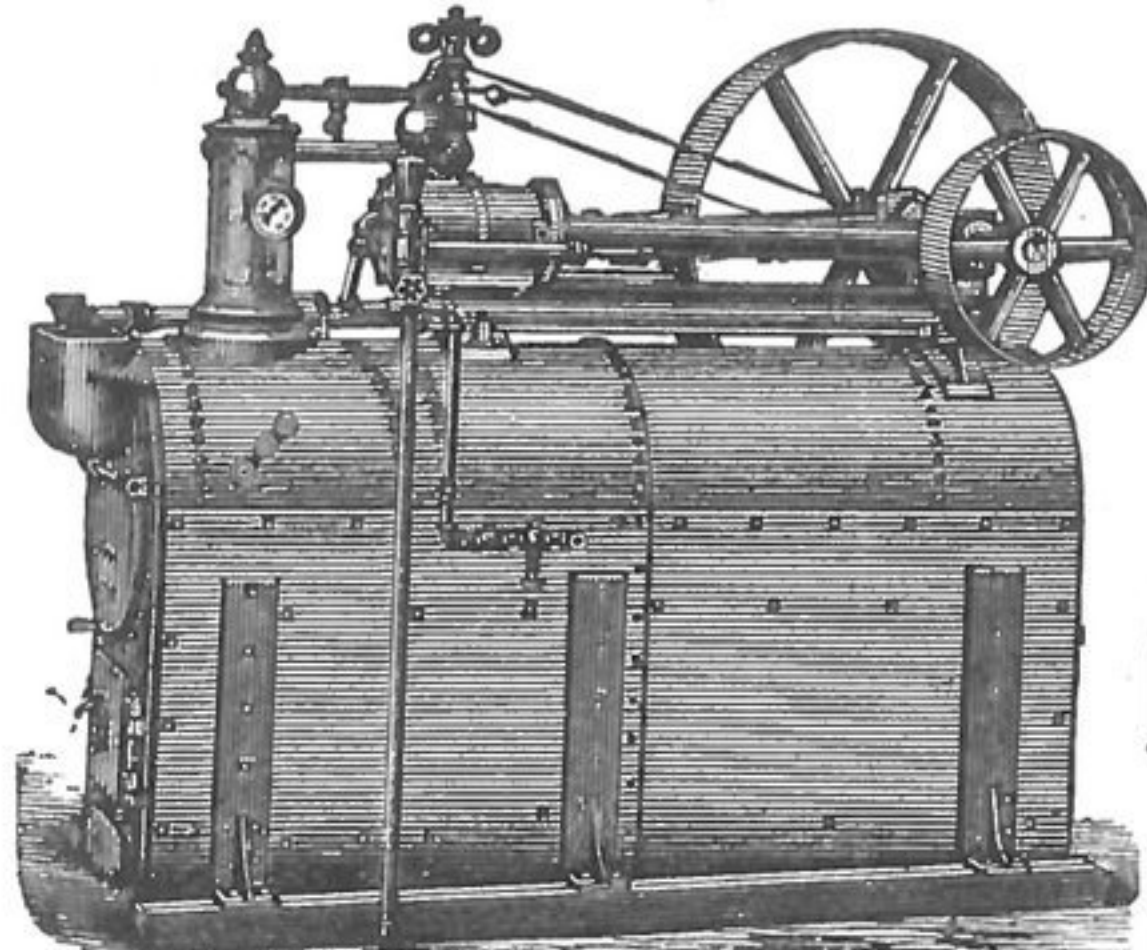
45 Dey Street,
NEW YORK.

Hill, Clark & Co.
BOSTON, MASS.

AUTOMATIC ENGINES FROM 2 TO 200 HORSE POWER.

SKINNER ENGINE CO. ERIE, PA.

Awarded **THREE GOLD MEDALS**
by the WORLD'S INDUSTRIAL and
COTTON CENTENNIAL EXPOSITION
of ST. LOUIS, MO.



PORTABLE and STATIONARY
ENGINES and BOILERS

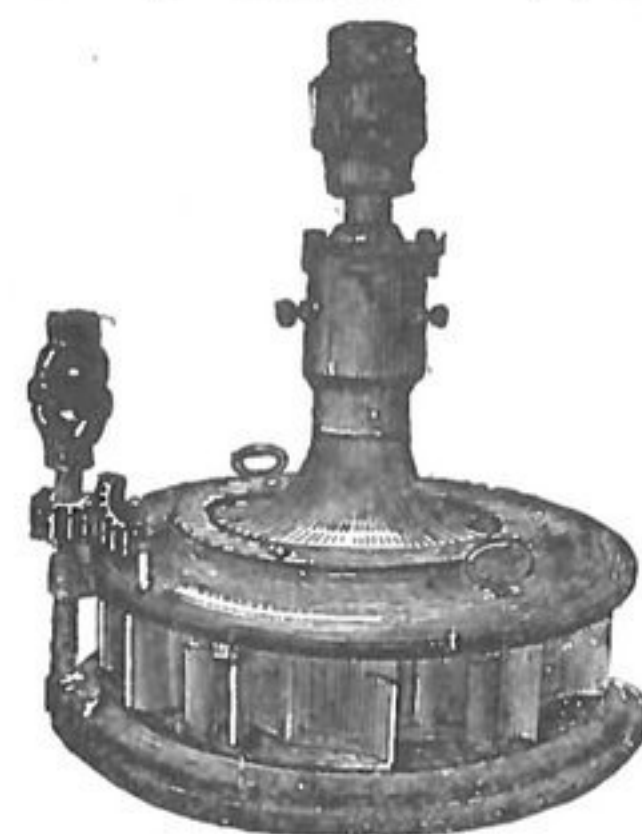
MORE THAN 2700 IN USE.

Send for **ILLUSTRATED CATALOGUE and PRICES.**

Eastern Office, O. R. Vincent & Co., Room No. 62, 15 Cortlandt St., New York.

FLINT MILL MACHINERY A SPECIALTY.

IMPROVED YORK



TURBINE WATER WHEEL.

SEND for ILLUSTRATED CIRCULAR with PRICES.

NOTES & NEWS

J. P. Alpin, Dilley, Ore., start a flour-mill.
 Giles Leach, miller, Chinchilla, Pa., is dead.
 Hodgenville, Ky., men build a grain elevator.
 John Engelke, millers, St. Louis, Mo., is dead.
 Gibson & Adams, Monroe, Ga., build a flour-mill.
 The Mt. Carmel, Ky., flour-mill has been improved.
 Simpsonville, Ky., men propose to build a flour-mill.
 Brown's elevator, Lincoln, Neb., burned; loss \$50,000.
 B. J. Vaden & Co., Elmwood, Tenn., remodel to rolls.
 F. L. Williams' corn-mill, Fayetteville, N. C., burned.
 Sibley & Houck, millers, Hutchinson, Kans., close out.
 F. & E. A. Rozier, Sparta, Ga., rebuild their corn-mill.
 Herman & McCartt, Sunbright, Tenn., built a grist-mill.
 Corman & Richardson's grist-mill, Abingdon, Ont., burned.
 The Cate grist-mill, Hopkinsville, Ky., adds new machinery.
 G. W. Lewis & Co., millers, Cleveland, O., now Lewis & Quale.
 Messrs. Albritton, Hanby's Mills, Ala., rebuild their burned corn-mill.
 Chick, Dean & Rogers, Mt. Sterling, Ky., built a 100-barrel roller mill.

A. D. Lloyd, Terrell, Tex., puts a new engine in his 150-barrel roller flour-mill.

W. A. Field, Greensboro, N. C., wants machinery for a 100-barrel roller flour-mill.

L. Hill and others, Covington, Tenn., have formed a company to build a flour-mill soon.

Myers Bros., Princeton, Ky., will build a roller flour-mill at Paducah, if they can secure a site.

Slitt & Middlekamp's Crown Flour Mill, Pueblo, Col., burned; loss \$80,000; insurance \$15,000.

Murphysville, Ky., men propose to buy the Murphysville flour-mill and refit it with roller machinery.

The Murfreesboro, Tenn., Elevator & Storage Warehouse Co. is organizing and will build an elevator.

The Mebane Mill Co., Mebane, N. C., propose to move their flour-mill to Durham, N. C., in the near future.

During 1888 California exported 839,934 barrels of wheat flour and 19,433,426 bushels of wheat grain, a total equal to 23,214,000 bushels of grain, against 820,256 barrels of flour and 14,932,670 bushels, a total of 10,624,000 bushels in 1887.

"A Professor of Agriculture" tells us that the raising of 30 bushels of wheat to the acre will remove from the land 51 pounds of nitrogen, 24 pounds of phosphoric acid and 37 pounds of potash. This could be replaced by 60 pounds of sulphate of ammonia, 171 pounds of superphosphate of lime and 76 pounds of chloride of potash.

The Minneapolis *Market Record*, the best authority in the Northwest, says: "The amount of wheat in all the country elevators in Minnesota and Dakota was 7,241,000 bushels on Feb. 1, against 8,015,000 bushels one month before, and 19,325,000 bushels Feb. 1 one year ago, and nearly as much two years ago as last year. The stocks in store in Minneapolis were 7,442,645 bushels, against 7,202,450 last year. Duluth stocks were 1,228,371 bushels, against 6,812,302 a year ago, and in St. Paul 290,000 bushels against 396,000 last year. The combined stocks out of farmers' hands last year, and in country and city elevators, exclusive of mill and private elevators in this city, were 33,735,461 bushels, against a total of 16,202,016 bushels now. There is an unknown quantity in mills here and in private storage, perhaps 1,000,000 bushels, which is probably about the same as last year. By adding that the total would be 17,202,016 bushels now, against 34,735,460 bushels last year; that is, by including private stocks both years. Or there is approximately half as much now as last year, and nearly the same difference compared with two years ago."

Wheat keeps higher at New York than at Liverpool: higher at Chicago than at New York, and higher at Minneapolis and Duluth than at Chicago. Half the speculators in the world keep their eyes on this anomaly and are amazed because prices do not go down. The other half of the world's speculators have their eyes on another very queer thing. It is the incessant and rapid decrease in the visible supply of wheat, more rapid even than last year, notwithstanding practically there is no export movement going on. This latter half are amazed that the price does not go up. In this contest over the price bears claimed all along that Europe would not take American wheat. It has not taken it. The bulls have declared all along the crop would be barely sufficient for home requirements. The visible supply so far, without an export movement, has surely decreased faster than it did last year with an export movement. The short sellers were certain that with an inadequate export their success was sure. The bulls relied upon the home demand, finally controlling prices. Both sides have so far realized all those hopes which were to insure success, yet there was never more uncertainty than there is now.

In December last H. H. Bissell, engine-dispatcher on the New York, Pennsylvania and Ohio Railroad, and Charles Near, foreman of the Diamond flouring mills, Youngstown, O., made a wager of ten dollars each on their respective capacities in the way of eating buckwheat cakes. The contest took place December 27. The cakes were each 5 inches in diam-

eter, and each man was allowed a minute's time between cakes. Bissell won, eating 63 cakes. Near stalled on the 59th cake. Both men are alive and well.

The variation in the measured and weighed wheat crop for several years past is shown in the following returns of the Agricultural Department:

	Weight per bus.	Bus. of crop.	Bus. of 60 lbs.
1887.....	58.5	456,329,000	445,047,538
1886.....	58.4	457,218,000	444,777,202
1885.....	57.0	357,112,000	339,496,449
1884.....	58.3	412,763,900	498,545,863
1883.....	56.9	420,154,000	398,435,481

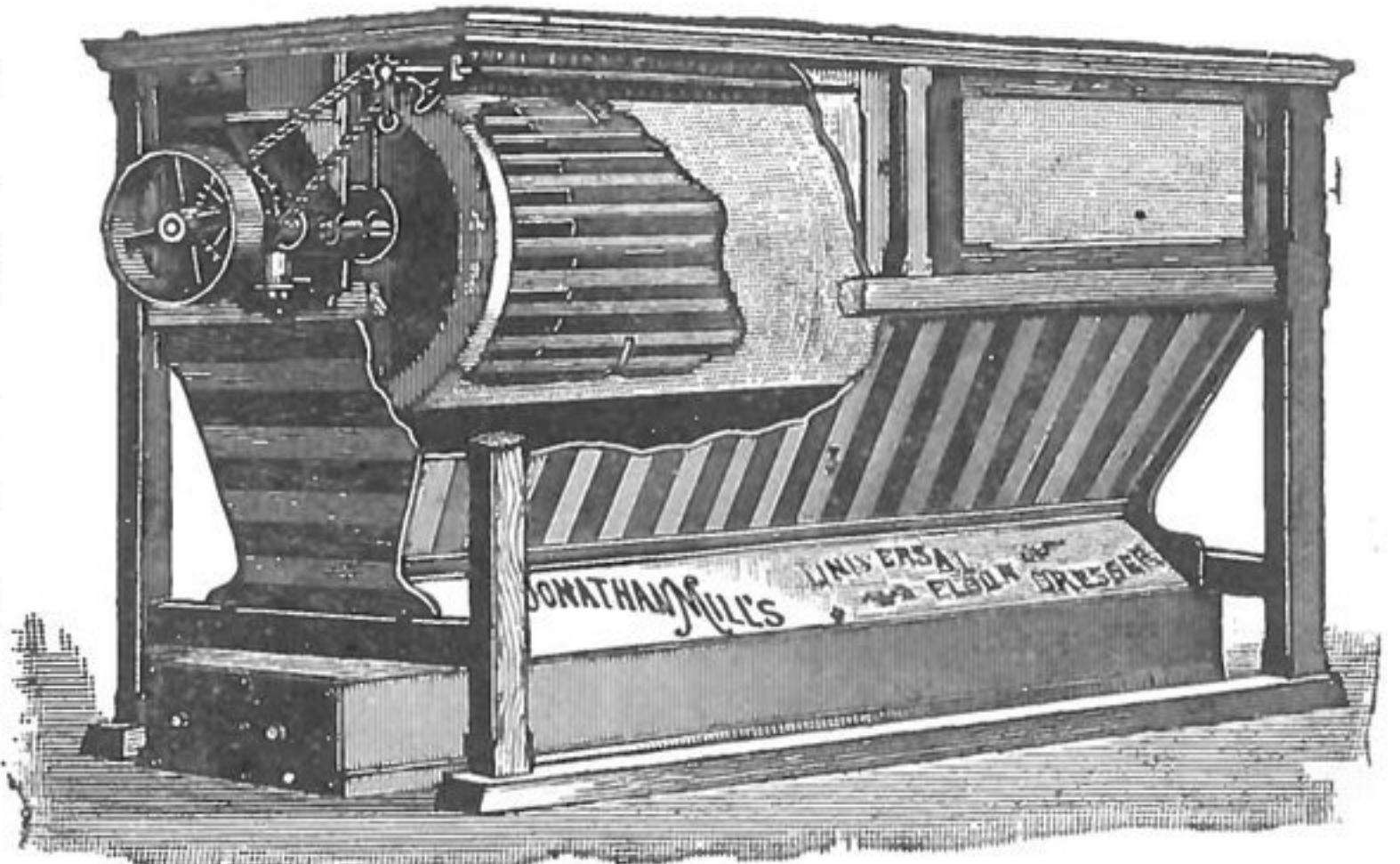
Says the Winnipeg, Manitoba, *Commercial* of January 21: The local situation remains about the same. The storm and cold snap last week checked farmers' deliveries some. For the week ended Jan. 12 the receipts of Manitoba wheat at the Lake Superior elevators were 38,510 bushels, against 77,490 for the same week last year. Total receipts to date are 1,825,950 bushels, against total receipts to the same date in 1887 of 3,364,130 bushels. The movement is mostly to elevators, all rail shipments eastward being very light. Competition at country markets for good wheat is keen, owing to light deliveries, and prices consequently keep up well. About 85c is still the average price paid to farmers in provincial markets, supposed to be on a basis of No 1 hard, but in reality it is often nearer to No 1 northern. The range of prices is from 80c to 90c to farmers.

Says Chicago *Daily Business*: A few months ago an interior miller who does not usually lay in heavy stocks of wheat bought and stored 200,000 bushels and wrote his commission merchant in this city panicky stories of the scarcity of wheat through all his section. There was not going to be half enough wheat to go around, and the price was going skyward. That was when he had a lot of wheat and the price was \$1.20. The commission man urged him to sell out his cash wheat, which he could have done at a profit of \$60,000, but the miller refused point blank. The other day the miller was on 'Change looking very complacent and self-satisfied. The commission man asked him how much wheat he had and received the reply, "25,000 bushels." "What have you done with the rest?" "Ground it into flour and sold it at a good profit." "Any wheat left in your section?" "Plenty of it, er—that is, enough to go around, I guess." "How do you know?" "Well I don't know, but I think so." Four months ago when the miller had plenty of wheat there was no more to come forward and prices were going higher. Now that his supplies are about gone and he wants more, there is plenty of wheat in the country and there is no probability of an advance.

The Canadian millers are to petition Parliament for protection. Their petition asks Parliament to take for the basis of action one of the following propositions: 1. To reduce the rate of duty on wheat from 15 cents per bushels to 12 cents; and to increase the rate of duty on flour from 50 cents per barrel to 60 cents. 2. To allow the rate of duty on wheat to remain as at present, and to increase the rate of duty on flour to 75 or 80 cents per barrel. 3. To allow the rate of duty on wheat to remain as at present, and impose an ad valorem duty of 20 per cent. on flour, so as to correspond with the rate upon flour charged by the United States Government. Commenting on these, the Toronto *Monetary Times* says: By the adoption of the first proposition, it is contended, the protection to the farmer would be increased. It is a pure delusion to talk of giving the farmer protection on his wheat. England is the market for his surplus, and the price current there fixes the price here and makes all attempts to raise it by legislation futile. It is quite possible that Minneapolis millers with their improved machinery, which should be the best in the world, get more flour out of a bushel of wheat than the average Canadian miller, and that to make the duty conspicuously in favor of the Canadian miller would be to a certain extent a premium on inferior machinery. As a matter of fact, does the Minneapolis miller consume 4½ bushels of wheat in making a barrel of flour? This, too, is a point for inquiry. Does the Canadian miller actually, on the average, get no more than a barrel of flour out of 4½ bushels of wheat. Do some get more and others only that much? And if there be a difference, is it due to the difference in the kinds and qualities of machinery used? If the best machinery were uniformly used, would no better result than that assumed in the millers' petition be attained? These are all matters for inquiry and must be settled by independent evidence, the millers themselves being heard in their own interest. The millers' petition does not stop short of the broadest statement on the point in dispute. It alleges 'that under the present disproportion between the duty on flour as compared with the duty on wheat, it is impossible for the Canadian miller to import wheat from the United States for grinding so as to be able to compete on anything like equal terms with the American miller in the sale of flour for consumption in the Dominion; that the United States miller who enters 1,000 barrels of flour into Canada for consumption has to pay only \$500 customs duty, while the Canadian miller who imports 4,500 bushels of wheat required for 1,000 barrels of flour has to pay thereon \$675 duty.' The alleged inability to compete rests on the assumption that no less than 4½ bushels of wheat will make a barrel of flour. The millers have industriously asserted that the harvest of last year will show a deficiency of wheat which will necessitate importation. Is there any connection between this representation and the movement signaled by the petition? The necessity of large importations of wheat as a reason for lowering the duty on wheat is alleged in the petition; but if there be such a necessity to supply consumption, the proper course for the Legislature to take would be to repeal the duties altogether both on wheat and flour. The farmer could not be injured by the repeal, and the consumer would benefit."

MILLERS

of the United States and Canada write us for our new pamphlet and revised price list of our **Jonathan Mills UNIVERSAL FLOUR DRESSER**. The best machine on the market. Giving satisfaction everywhere in the best mills in this country. Thousands in use. We carry a full line of Crown Silk anchor Bolting Cloth and Grit Gauzes.



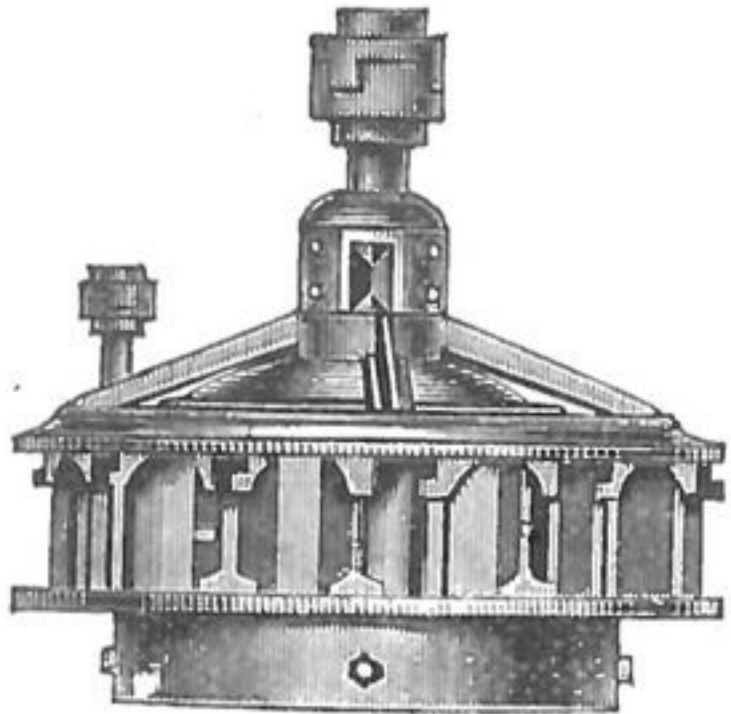
WE SOLICIT YOUR TRADE.

The Jonathan Mills Mfg. Co., Cleveland, Ohio, U. S. A.

THE IMPROVED "SUCCESS"

THIS WHEEL IS BOTH DURABLE AND CHEAP

PERCENTAGE: { Full Gate..... 86.29
1/4 Gate..... 86.07
3/4 Gate..... 81.25



SEND FOR PAMPHLET TO

S. Morgan Smith, York, Pa.

ATTENTION MILLWRIGHTS!

A BOOK YOU ALL WANT.

LEFFEL'S
CONSTRUCTION of MILL DAMS
AND
BOOKWALTER'S
MILLWRIGHT & MECHANIC
A STANDARD WORK.

This practical work of 288 pages gives with full illustrations and complete detail how to build or repair all kinds of mill dams.

PRICE FIFTY CENTS.

Or will be sent with a copy of "THE MILLING WORLD" for one year (postage prepaid) for \$1.25.
—ADDRESS—

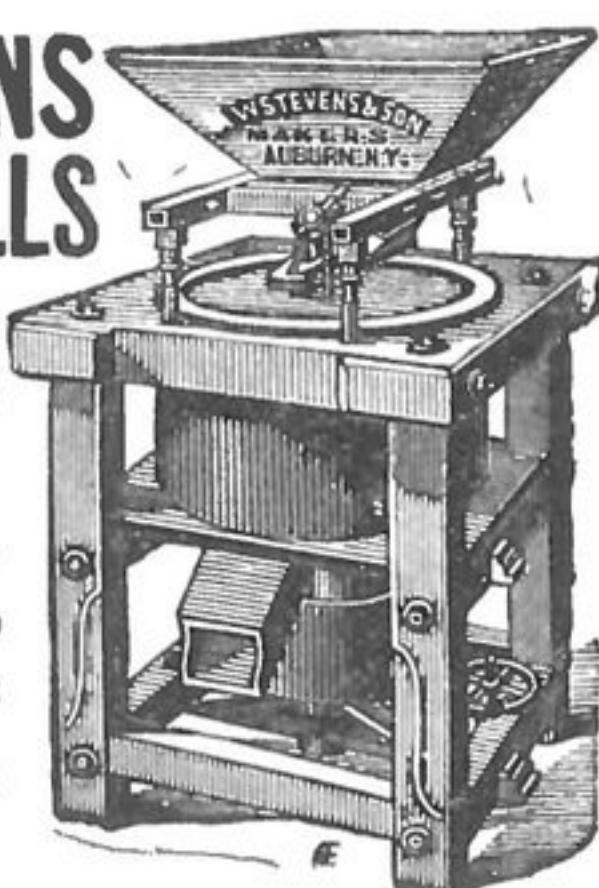
McFAUL & NOLAN,
DRAWER 203, BUFFALO, N. Y.

PLEASE mention THE MILLING WORLD when you write to advertisers. It will pay you to do this.

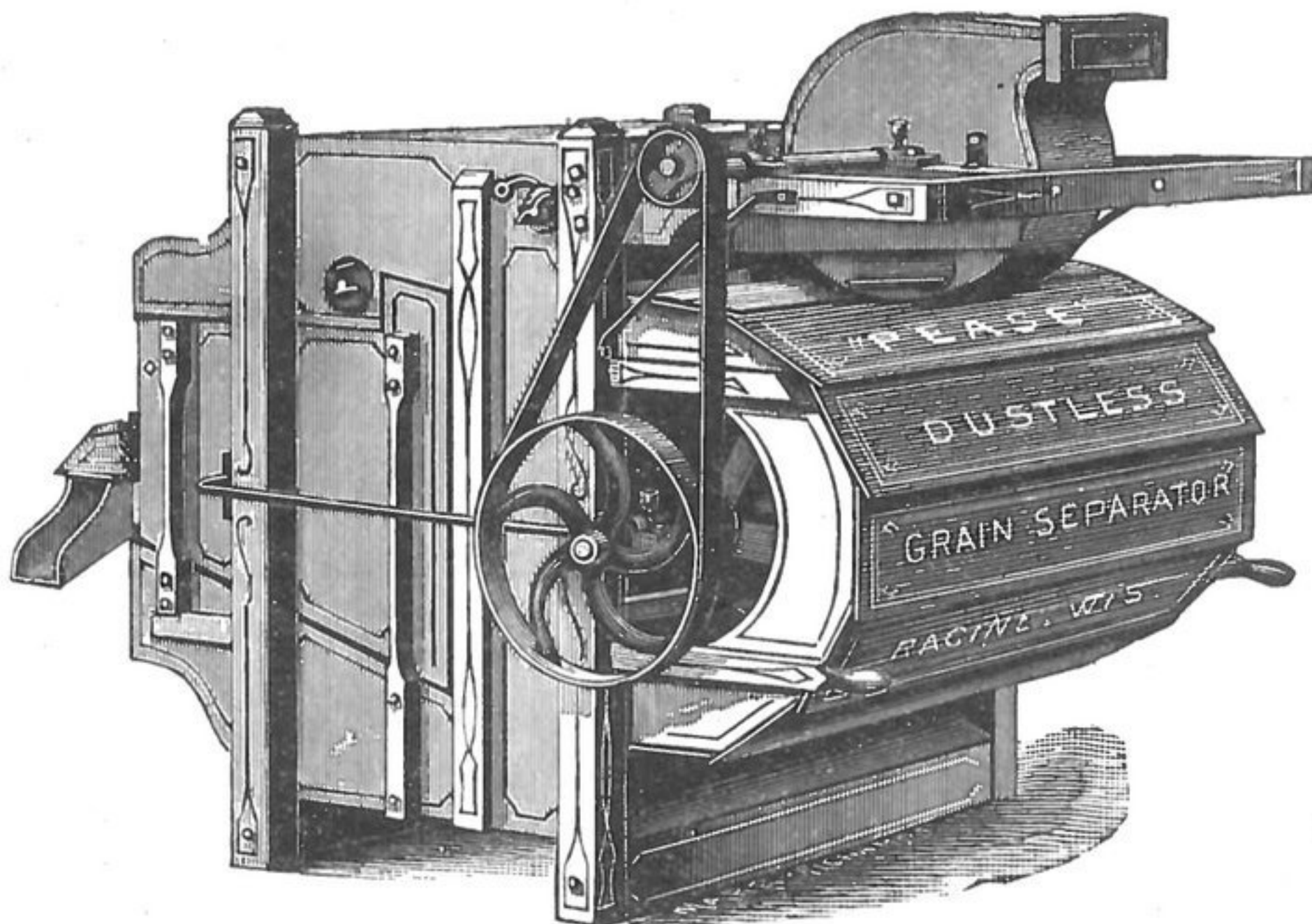
THE STEVENS PORTABLE MILLS

For CORN and FEED GRINDING

Genuine French
BUHR STONES
PowerCornSheller
Prices Below the Lowest
A.W. STEVENS & SON
AUBURN, N. Y.
Mention this paper.



THE "PEASE" DUSTLESS GRAIN SEPARATORS.



These Separators not only clean grain, but separate and SCREEN it. They require less space, and less power than any others, and are less expensive.

FANNING MILLS, both side shake (for hand use or power) and also the famous "Pease" end shake mills, for all kinds of grain. Various sizes—capacity 100 to 500 bushels per hour.

—THE—

W. G. ADAMS
POWER
CAR PULLER.

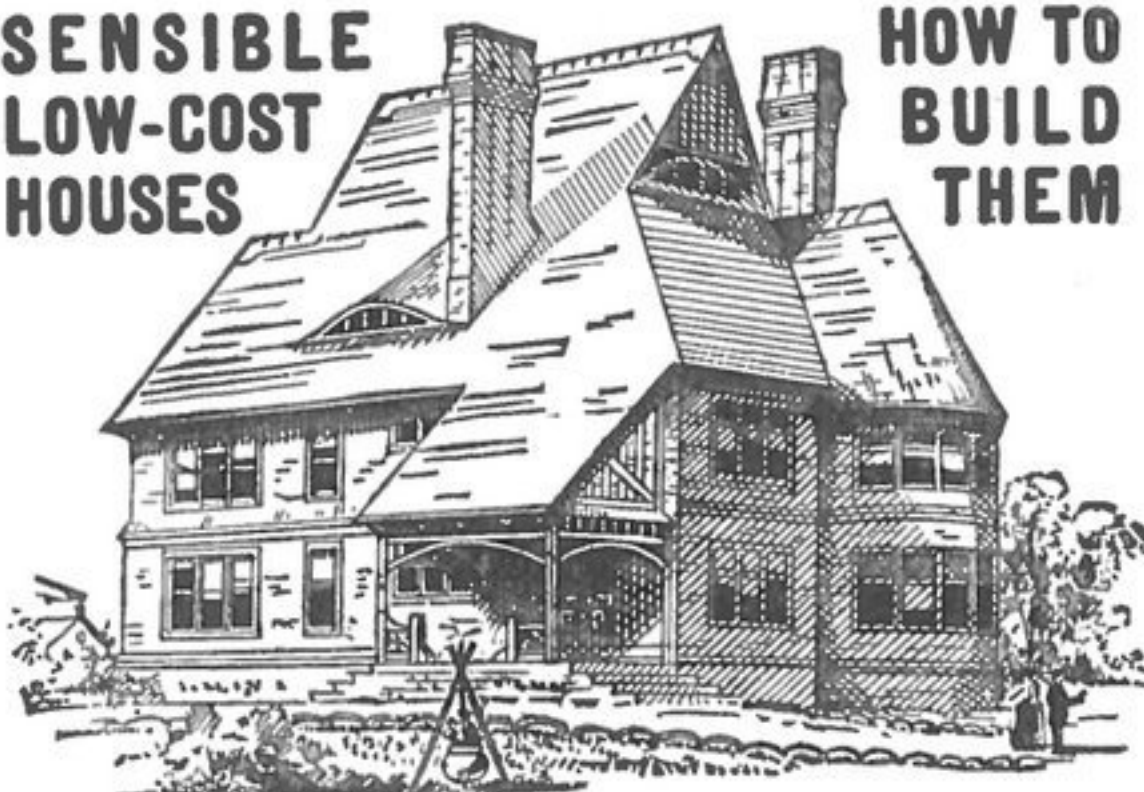
Elevator Supplies of All Kinds.

For Full Descriptive Catalogues and Prices,
Address the

E. H. PEASE MANUFACTURING CO., RACINE, WISCONSIN.

SENSIBLE LOW-COST HOUSES

HOW TO BUILD THEM



A large Atlas, giving illustrations and full descriptions of 56 desirable modern houses, costing from \$800 to \$1500. Every detail profusely illustrated, showing many valuable original ideas. Shows what to do and what not to do. Houses adapted to all climates described. The latest, best, and only cheap work published. Sent by mail on receipt of \$1.00.
NATIONAL ARCHITECT'S UNION, PHILA., PA.

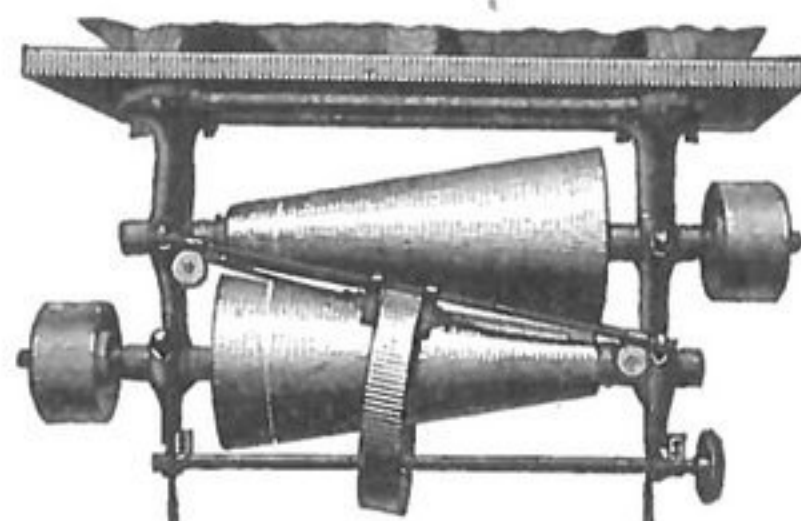
"Cooper on Belting"

A Treatise on the Use of Belting for the Transmission of Power. With illustrations of approved and actual methods of arranging Main Driving and Quarter Twist Belts, and of Belt Fastenings. Examples and Rules in great number for exhibiting and calculating the size and driving power of belts. Plain, Particular and Practical Directions for the Treatment, Care and Management of Belts. Descriptions of many varieties of Beltings, together with chapters on the Transmission of Power by Ropes; by Iron and Wood Frictional Gearing; on the Strength of Belting Leather; and on the Experimental Investigations of Morin, Briggs, and others, for determining the Friction of Belts under different tensions, which are presented clearly and fully, with the text and tables unabridged. By JOHN H. COOPER, M. E. Second Edition. One vol., demi octavo. Cloth, \$3.50. Sent post-paid on receipt of price. Address,

McFAUL & NOLAN, BUFFALO, N. Y.

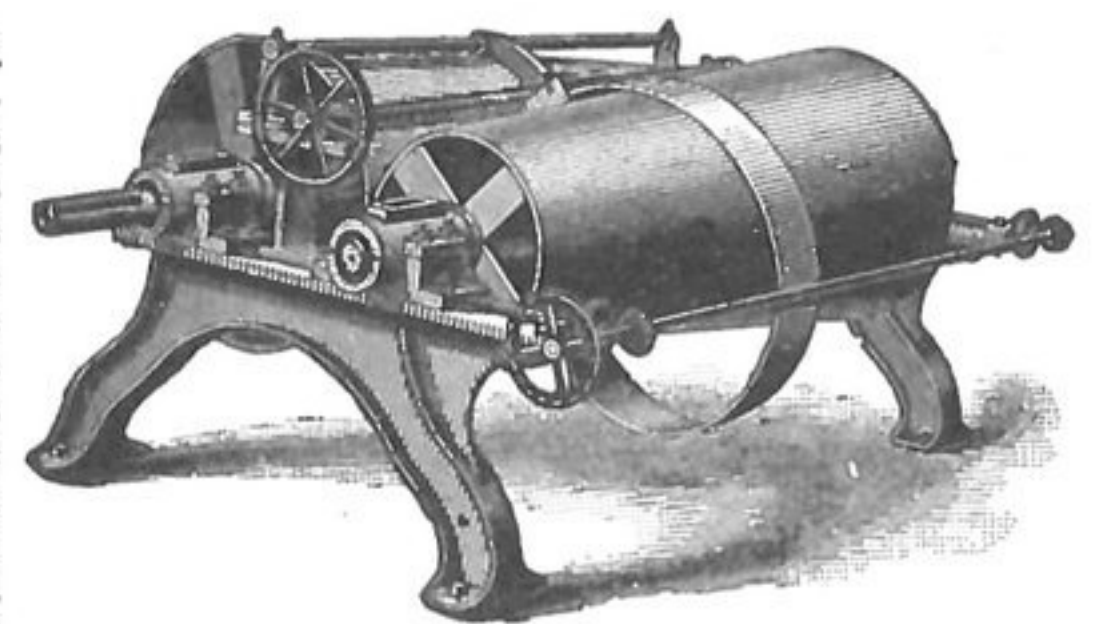
THE EVANS FRICTION CONE & FRICTIONAL GEARING

"PATENTED."



fluctuating. All sizes made from 1/2 Horse Power to 50 Horse Power.

This cut represents a set of hanging cone pulleys. This pattern is intended for that class of machinery that stops and starts at the same speed, and at the same time be able to change the speed more or less while running. These cones are also fitted with a governor where a steady motion is required and the initial power is



SEND FOR ILLUSTRATED CATALOGUE.

EVANS FRICTION CONE CO., 85 Water St., BOSTON.

EUROPEAN ECHOES.

THE Buda-Pesth mills did more work in 1888 than in any previous year, having ground 6,100,000 quintals of wheat, against 5,200,000 quintals in 1887, and 4,850,000 quintals in 1886.

THE stocks of breadstuffs in Great Britain at the principal points on January 1, 1888, included 568,200 sacks of flour, against 729,160 sacks a year ago; 1,149,100 quarters of wheat, against 985,260 a year ago; and 211,800 quarters of corn against 136,100 a year ago.

THE "Financial Times" of London says that the old English pound was derived from the weight of 7,680 grains of wheat, all taken from the middle of the ear and dried. Then came the Troy pound. Henry VIII introduced the avoirdupois pound, containing 7,000 grains. At one time the pound weight of silver was really a pound of silver divided into twenty shillings. The word pound long ago became separated from its original meaning.

SAYS an English writer, commenting on British trade returns for 1888: The total value of all the United Kingdom imports of such agricultural commodities as we produce in this country, excluding cotton and tobacco, given above, and adding minor items not in the list, was £142,365,979 in 1888, against £133,278,416 in 1887 and £126,243,155 in 1886. The values of the corresponding exports were £20,613,629, £19,865,920 and £19,179,594 in the same order. Thus the net cost of our imports of the same products as we produce here, with maize added, because it takes the place of our home-grown grain, was £121,762,350 in 1888 compared with £113,412,486 in 1887 and £107,063,561 in 1886.

R. HUNTER Craig & Co.'s Liverpool Foreign Flour Report of Jan. 18 reports American patents as selling at the following prices per barrel: Canadian \$5.62; Michigan and Ohio \$5.88; Milwaukee \$6.04; Minneapolis \$6.47 and St. Louis \$6.04. There was a good demand for all save Minneapolis, which was slow. German first quality sold at \$5.27. The demand was slow. Second quality sold at \$4.84. The demand for all Hungarian grades was slow. No. 0 sold at \$6.21, No. 1 at \$6.05, No. 2 at \$5.88, No. 3 at \$5.70 and No. 4 at \$5.54. This is about the same price the Hungarian flours were selling at on Dec. 14. The German has fallen off 20 cents since then, and the decline in the price of American grades ranged from a falling of 9 cents in the price of Minneapolis patent to 18 cents in that of Milwaukee, and 30 cents in the price of Canadian patent. On the same date the Glasgow quotations included the following prices: Canadian \$5.62; Michigan and Ohio \$5.88; St. Louis \$6.05; Milwaukee \$6.13; Minneapolis \$6.64. German first and second quality was selling at \$5.29 and \$4.88; French at \$5.39; Hungarian No. 0 at \$6.13; No. 1 at \$5.98; No. 2 at \$5.78; No. 3 at \$5.62; No. 4 at \$5.39; No. 5 at \$5.20; No. 6 at \$5.04.

SAYS the London "Miller" of January 21: The complete withdrawal of European offers for wheat from Atlantic shippers has compelled holders to make concessions, and from being lately 3s. per quarter above London views, New York has descended so as to be only about 1s. per quarter above the terms at which considerable business may follow. Still the opportunity of buying American wheat or flour is not tempting, for the goods offered lack the average excellence to which buyers are accustomed. At home we have too much inferiority in our wheat samples to allow of foreign inferiority being added. It is the good, strong and colorful wheat sample that is wanted, and of such the world seems deficient in 1888-89. At the present time, with his choice of wheat samples, the British miller is well holding his own against the world. The flour he makes and sells at 27s. to 36s. per 280 pounds is about as good an article as the money will buy; but the situation does not invite speculative buying, and when such is absent the market drags along. Russia is a firm holder of its reserves of wheat at present

quotations. During the week just past some sellers advanced their asking prices 3d. to 6d. per quarter. The winter is very severe, and resumption of navigation is not expected before the middle or end of February, even at Odessa. South American wheat-exporting countries have lately had to reduce their grain crop estimates, through adverse weather. Only about half the quantity of export wheat estimated a few weeks ago will now be available. Australia scarcely makes an offer of cargoes. New Zealand asks about 38s. 6d. for such spring shipments as it can make. The Continent by abstention from buying wheat makes market opinion dull, but competitive and liberal buying in the early future is commonly expected.

MILLING PATENTS.

Among the patents granted January 29, 1889, are the following:

James B. Allfree, Indianapolis, Ind., No. 396,851, a flour-bolt.

William Minnigh, Bradleytown, Pa., No. 396,887, a seed grader and cleaner.

John M. Stukes and Oliver P. Reid, Aguilases, Tex., No. 396,902, a combined corn-sheller and wash-board.

James J. Faulkner, Jackson, Mich., No. 396,922, a flour-bolt.

Anton Dobler, New York, N. Y., No. 396,990, a grinding-mill.

James L. Mahoney, Albertville, Ga., No. 397,014, a machine for dressing millstones.

James F. Winchell, Springfield, O., No. 397,045, a feed-regulating mechanism, assigned to the Foos Mfg. Co., same place.

Eugene Bretney, Indianapolis, Ind., No. 397,048, a dust-collector.

Henry A. Hueffner, Palmer, Ill., No. 397,057, a bolting-reel.

Chas. E. Warner, Melvern, Kans., No. 397,101, an automatic grain-weighing machine.

Among the patents granted February 5, 1889, are the following:

Saxton T. Ayres, Philadelphia, Pa., No. 397,411, a machine for packing flour.

Herbert F. Stone, Appleton, Wis., No. 397,445, a grinding-mill.

COTEMPORARY COMMENT.

Of course those defenders of the people's rights and pure minded patriots, the gentlemen who write editorials for the daily press, continue their assaults on that mythical object, the Flour Trust. Again and again they have deplored the "greed," etc., that combines and conspires to raise the price of the poor man's loaf. It is true that the price of flour has not advanced since the mills agreed to curtail capacity. On the other hand wheat has declined in price, and if any one has been injured by the action of the millers, it is only the grain speculator.—*American Miller*.

No one city owns the right to mill wheat and market flour. There is a vein running through the milling press continually which, if it could speak, would say that Minneapolis runs the business, or St. Louis is a big leader. Any such talk is folly, or, to put it beyond all possibility of contradiction, whenever any one town or set of towns assumes to boss the milling interests of these United States, an absurd position is taken. Influence the markets they may for a day. But sooner or later the proper equilibrium will obtain, and the self-assumed leader will be knocked out. And the time is near at hand when some of these "big guns" will explode. There will sooner or later be a power in this wheat-growing and flour-producing land which will set things to rights.—*St. Louis Miller*.

The National millers convention will meet in Indianapolis to-morrow. It will be a representative gathering, and not a jug-handled, clique affair like the Milwaukee convention two months ago.—*Chicago Daily Business*, Feb. 4.



RELiance OIL & GREASE CO., CLEVELAND, O.,

—MANUFACTURERS OF—

Finest Lubricants for Milling Plants. A Challenge to the World.

WRITE US.

"VALVE OLEINE"—875 Degrees Fire Test, Cylinder Oil.

"RUSSIAN"—Engine and Machine Oil.

"CHIEF"—Roller Mill Lubricant.

"ANCHOR"—Roller Mill Grease.

"NIAGARA"—Belt Grease.

"CHELSEA"—Scale Solvent, Best on Market.

Agents Wanted.

FREE—SAMPLES, CATALOGUE, AND ALL INFORMATION.

SPECIAL
HIGH GRADE
PRODUCTS



MOORE'S PATENT BARREL HEATER.

For all
kinds of coop-
erage. Thousands
in use in all parts of the
U. S. Send for Circular.

JOLIET STOVE WORKS JOLIET ILL.



STANDARD SCIENTIFIC BOOKS.

THE PUMP CATECHISM—By Robert Grimshaw, M. E. A Practical Help to Runners, and Makers of Pumps of any kind. Just out. In cloth, one volume. Price postpaid..... \$1.00

A TREATISE ON FRICTION AND LOST WORK IN MACHINERY AND MILL WORK—By Robt. H. Thurston. Containing an explanation of the Theory of Friction and an account of the various lubricants in general use, with a record of various experimenters to deduce the laws of Friction and Lubricated Surfaces. Copiously illustrated. 8 vo., cloth... \$3.00

KNIGHT'S MECHANICAL DICTIONARY—By Edward H. Knight, A.M., L.L.D. A book for all persons who make, buy, sell, use or want to know anything about tools or machines, now complete in four volumes, bringing the record down to this time. Sheep; 4 volumes... \$31.50

THE AMERICAN HOUSE CARPENTER—By R. G. Hatfield, (1880). A Treatise on the art of Building, comprising styles of architecture, strength of materials, theory and practice of construction of floors, framed girders, roof trusses, stairs, doors, windows, mouldings and cornices. Numerous fine wood engravings. 8 vo., cloth..... \$5.00

A MANUAL OF CATTLE FEEDING—By H. P. Armsby, Chemist of the Connecticut Agricultural Experiment Station. With plates; 12 mo., cloth..... \$2.50

A TREATISE ON TOOTHED GEARING—By Howard J. Cromwell. 12 mo., cloth. Complete Instructions for Designing, Drawing and Constructing spur Wheels, Bevel Wheels, Lantern Gear, Screw Gear, Etc.. Etc... \$2.00

STEAM ENGINE CATECHISM—By Robert Grimshaw. A Series of thoroughly practical questions and answers arranged so as to give to a young engineer just the information required to fit him for properly running an engine. 18 mo., cloth..... \$1.00

THE WINDMILL AS A PRIME MOVER—By A. R. Wolf, M. E. Comprehending everything of value relating to windmills, their use, designs, construction, etc. With many fine illustrations. 8 vo., cloth..... \$3.00

BOOKKEEPING & ACCOUNTANTSHIP—By Thomas Jones. For self-instruction or office reference. Based on twenty years experience in teaching. 8 vo., cloth..... \$2.50

THE ARCHITECT AND BUILDERS POCKET-BOOK—By F. E. Kidder. With original tables and valuable information for architects, builders, engineers and contractors. Fully illustrated. In Pocket-Book form. Morocco..... \$3.50

Any book extant at lowest prices. Great inducements to parties collecting libraries.

McFAUL & NOLAN, BUFFALO N. Y.

WIRE BOLTING CLOTH—STEEL, BRASS & TINNED

—[ESTABLISHED 1844]—

Exclusive Manufacturers of the

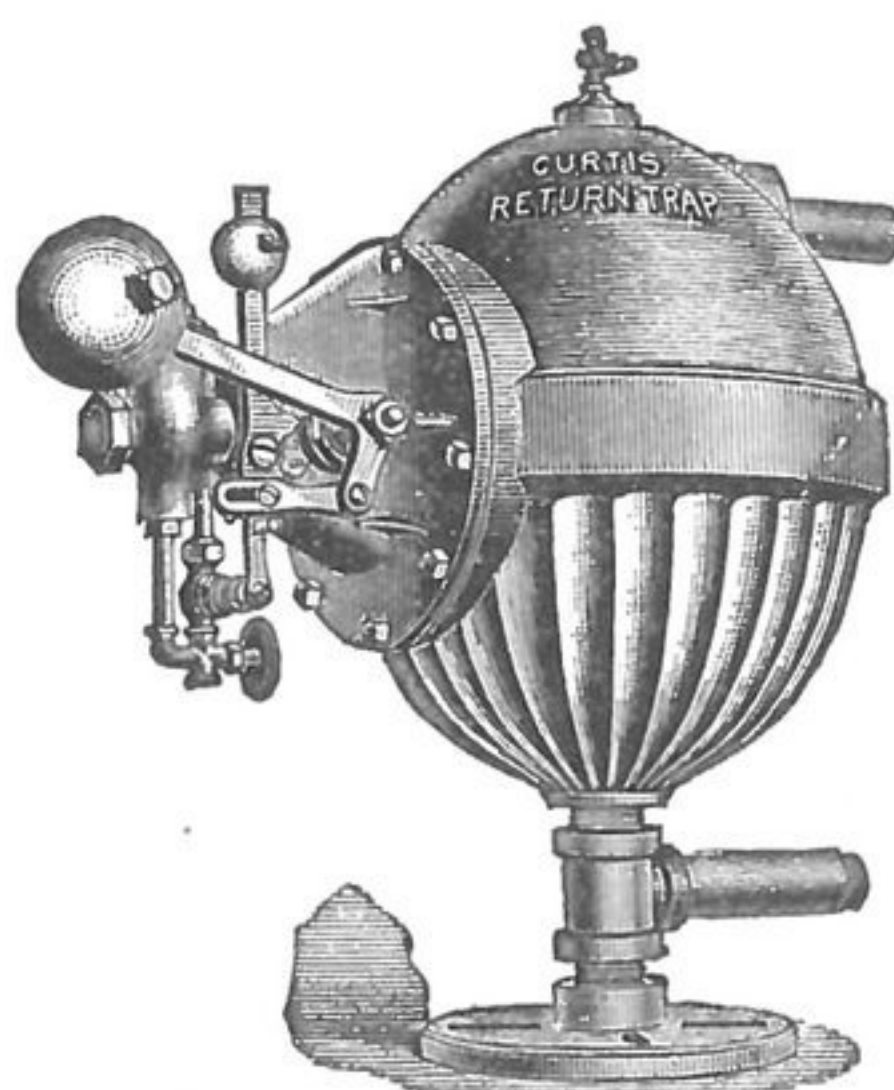
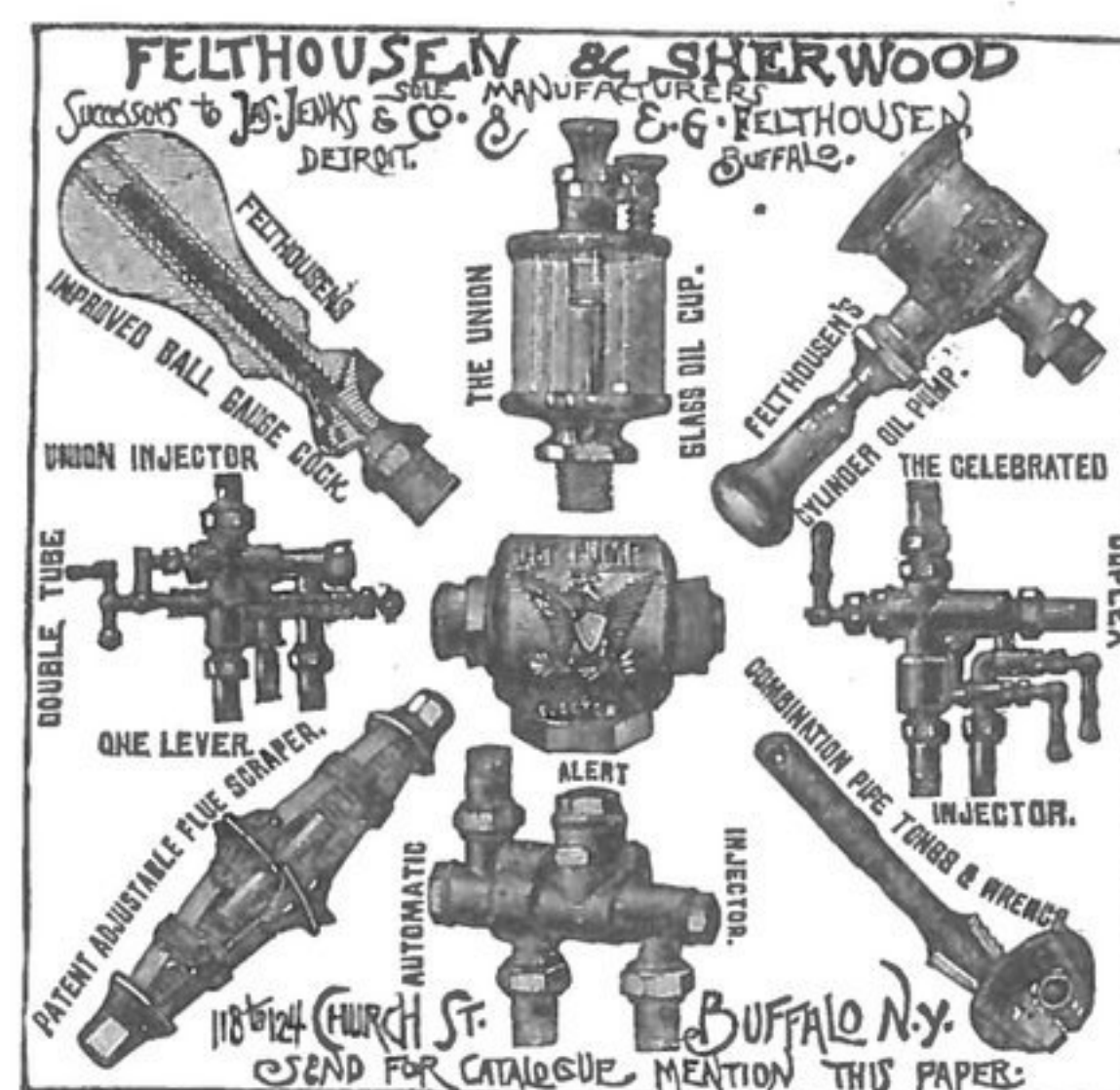
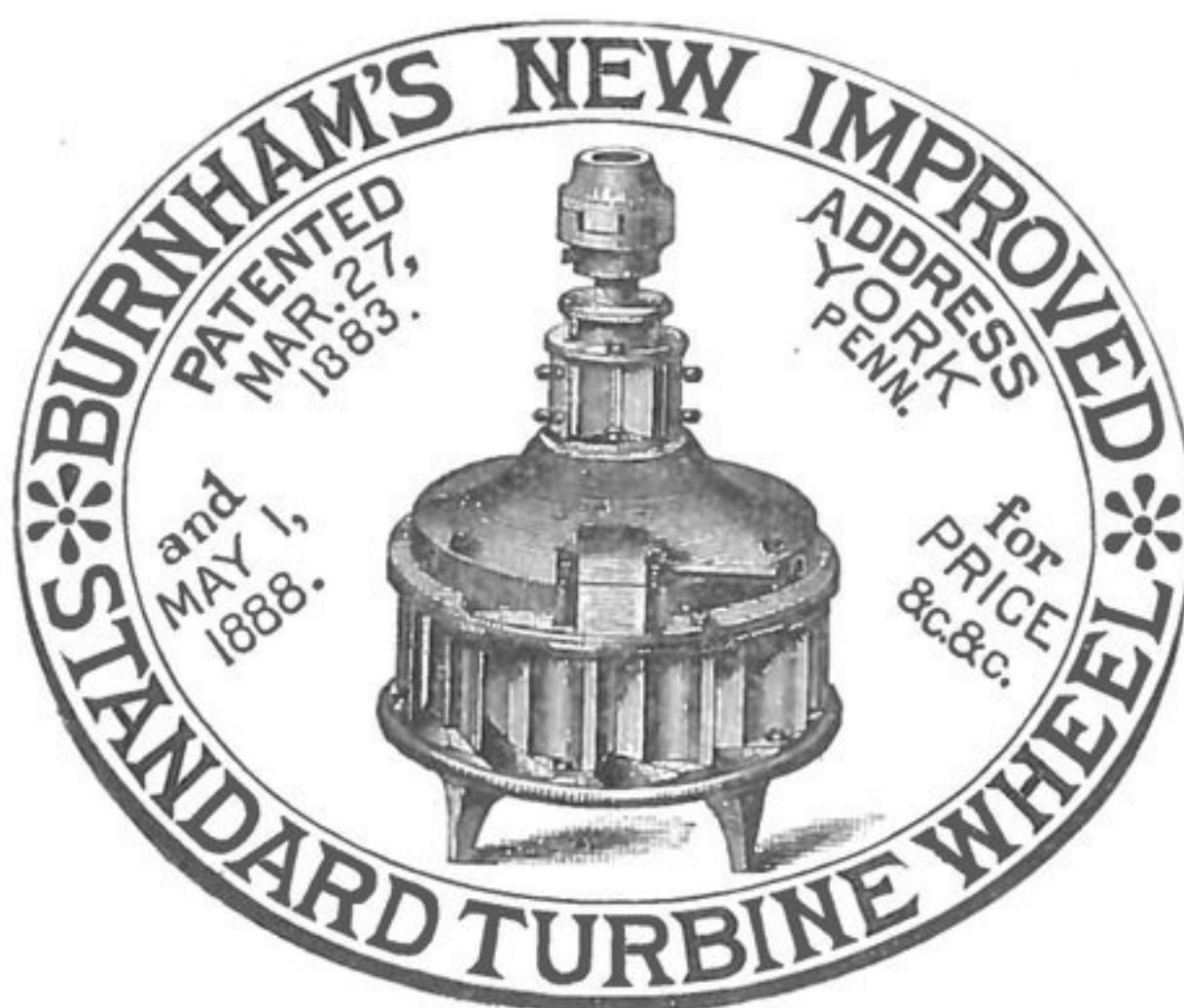
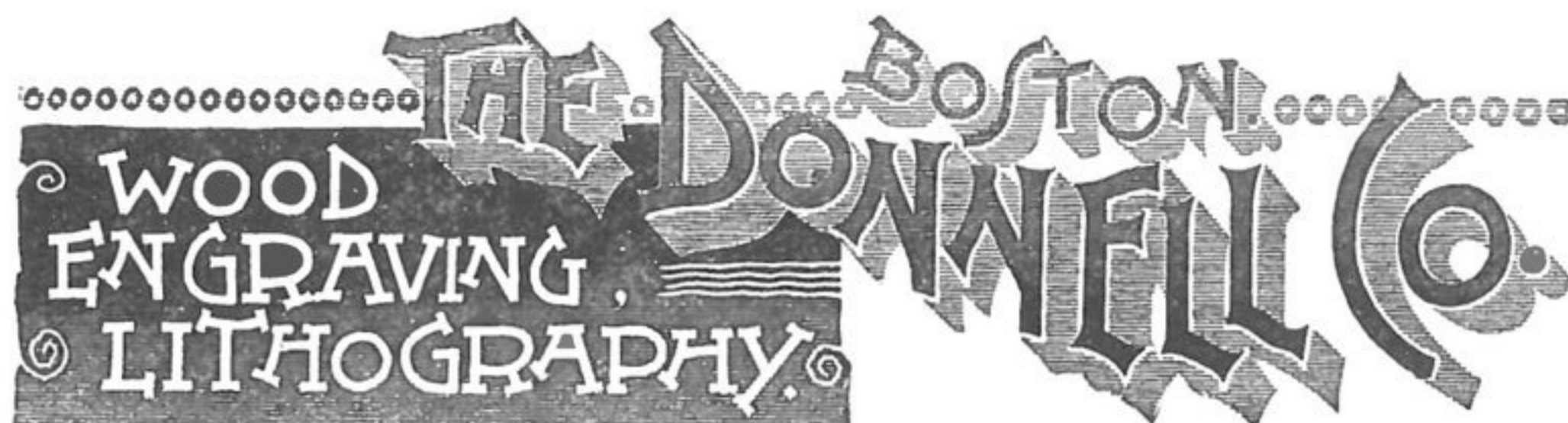
"ACME" STEEL TEMPERED BATTERY & BOLTING WIRE CLOTH.

Also manufacturers of Bran Duster Cloth, Plated Wire Mill Screen Cloth, Smut Cloth, Brass and Copper Wire Cloth. A full line constantly on hand. Send for samples and price lists.

Brooklyn Wire Cloth Works.

NO. 107 JOHN STREET, NEW YORK.

CLOTHS MADE UP WITH PATENT BINDING WHEN DESIRED.



THE CURTIS PATENT RETURN STEAM TRAP.

It is noiseless, positive, rapid, will return all condensation back into the boiler, and works equally well in connection with reduced pressure or exhaust steam, also when the return line is below the water line of the boiler.

**THE CURTIS REGULATOR COMPANY,
NO. 74 BEVERLY ST., BOSTON, MASS.**

GENERAL AGENCIES.

NEW YORK, 109 Liberty st.

CHICAGO, 218 Lake st.

PHILADELPHIA, 2035 N. Front st.

ST. LOUIS, 707 Market st.

MINNEAPOLIS, 210 S. Third st.

NEW ORLEANS, 21 Union St.

Grain Flour Trade

OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., February 9, 1889.

On Friday of last week large deliveries of wheat in New York made the markets irregular and quiet, with some added firmness at closing. February wheat opened at 92 $\frac{3}{4}$ c. and closed at 93 $\frac{1}{4}$ c. Options 4,200,000 bushels. February corn sold up to 44c. at closing and oats to 31 $\frac{1}{2}$ c. Wheat flour was duller than ever, the market seeming to be abandoned by buyers. Exporters did little. The New York stocks of flour on February 1 were set down at 137,475 barrels of winter and 215,720 of spring, making a total of 353,195 barrels, against 344,475 barrels on January 1, an increase in spite of the "shut down" in certain milling centers. On February 1 last year the stocks footed only 176,106 barrels, when no formal "shut down" was in operation or proposed. The minor lines were featureless.

On Saturday the markets were dull and steadier and without important change. February wheat opened at 93 $\frac{1}{4}$ c. and closed at 93c. Options 1,200,000 bushels. February corn ruled 44 $\frac{1}{2}$ c. and oats at 31 $\frac{1}{2}$ c. Wheat flour was quiet and unchanged, with only small business reported, as buyers and sellers were still too far apart. The minor lines were featureless.

On Monday there was a dull and irregular opening, and a flurry in wheat in Chicago made things lively for a time. Northwestern reports of small stocks of wheat on hand caused the flurry. In New York February wheat opened at 93c. and closed at 94 $\frac{1}{4}$ c., with 3,000,000 bushels options. In Chicago February wheat closed at 96 $\frac{1}{2}$ c. and May at \$1.00. February corn closed at 44 $\frac{1}{2}$ c. and oats at 31 $\frac{1}{2}$ c. Wheat flour was without general change or new feature of importance. The January output was larger than the December output, notwithstanding the alleged "shut down." The increase in output was due to the break in wheat prices, which enabled the millers to reduce the cost of flour-making. The other lines were unchanged.

The visible supply in the United States and Canada was:

	1889.	1888.	1887.
	Feb. 2.	Feb. 4.	Feb. 5.
Wheat.....	34,874,338	41,086,646	61,770,031
Corn.....	13,323,294	7,817,070	16,460,538
Oats.....	8,064,846	5,402,768	4,885,202
Rye.....	1,698,091	363,468	436,383
Barley.....	2,384,180	2,929,159	2,197,484

On Tuesday the markets were irregular and excited. February wheat opened at 95 $\frac{3}{4}$ c., sold up to 97c. and closed at 94 $\frac{1}{4}$ c. Options 6,000,000 bushels. February corn closed at 44 $\frac{1}{2}$ c. and oats at 31 $\frac{1}{4}$ c. Wheat flour was dull and unchanged. Sales were small. Other lines were quiet.

On Wednesday easier cables depressed breadstuffs again. February wheat closed at 94 $\frac{1}{4}$ c. Options 1,850,000 bushels. February corn closed at 44c. and oats at 31 $\frac{1}{4}$ c. Wheat flour ruled unchanged, and all the minor lines were featureless.

On Thursday light receipts, both present and prospective, pushed wheat up slightly. February wheat closed at 95c. Options 1,300,000 bushels. February corn closed at 43 $\frac{1}{2}$ c. and oats at 30 $\frac{3}{4}$ c. Buckwheat grain was nominally 55@58c. Rye was nominally 56@57c. on track for Jersey and Pennsylvania, and 60c. on track bid and 65c. asked afloat for No. 1 state. Barley was sick at 70@75c. for 2-rowed state, 74@76c. for 6-rowed and 70@80c. for the whole range of Canada. Malt was quiet at \$1.07@1.10 for city, \$1.02@1.05 for country, 95c@1 for 6-rowed and 90c. for 2-rowed. Mill-feed was steady at the following quotations: 65@75c. for the whole range at 40, 60 and 80 lbs. spring and

winter; 80@85c. for 100 lbs; 90c. for sharps; 80c. for rye; screenings 50@80; oil meal \$1.45@1.50; cotton meal \$1.25@1.28; barley meal, 93c. nominally for the latter.

Wheat flour was dull on discouraging cables. Both jobbers and shippers staid out of the market, hoping that the Chicago clique would "let wheat down again." Business was light.

Following are the quotations:

SPRING FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.90@2.15	\$....@....
Fine.....	2.15@2.40	2.50@2.80
Superfine.....	2.65@3.10	3.20@3.35
Extra No. 2.....	3.30@3.45	3.45@3.65
	New. Old.	New. Old.
Extra No. 1.....	3.70@4.40	3.80@4.40
	New. Old.	New. Old.
Clear.....	3.90@4.65	4.40@4.90
Straight.....	5.15@5.65	5.65@5.90
Patent.....	5.75@6.40	6.25@6.80

WINTER FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.90@2.15	\$....@....
Fine.....	2.50@2.75	2.70@2.90
Superfine.....	3.15@3.30	3.25@3.40
Extra No. 2.....	3.30@3.45	3.60@3.80
Extra No. 1.....	3.70@4.65	3.90@5.40
Clear.....	4.20@4.50	4.40@4.80
Straight.....	4.90@5.15	4.90@5.50
Patent.....	5.15@5.50	5.30@6.15

CITY MILLS.		
W. I. grades.....	\$5.00@5.15	
Low grades.....	2.35@2.75	
Patents.....	5.90@6.65	

Rye flour was dull at \$3@3.15 for round and job lots of good to fancy brands. Buckwheat flour was steady and dull at \$2.05@2.13. Corn products were dull at the following quotations: Coarse meal, 80@85; fine yellow, 98c@1.00; fine white, \$1.03@1.05; Southern, 80c@1.20 for coarse and fine in bags, \$2.85@3.00 in barrels; Brandywine and Sagamore, \$3.00; grits, \$2.50@2.60; corn flour and white granulated meal both \$2.75@3.25.

BUFFALO MARKETS.

FLOUR—City ground—Patent spring, \$7.25@7.50; straight Duluth spring, \$6.75@7.00; bakers' spring, \$5.25@5.50; red winter \$6.00@6.25; white winter, \$6.00@6.25. Western—Patent spring, \$7.25@7.50; straight Minnesota, \$6.75@7.00; Minnesota bakers, \$5.25@5.50; red winter, \$6.00@6.25; white winter, \$6.00@6.25; low grade flour, \$4.00@4.50; Graham flour \$6.00@6.25; rye flour, \$4.80@4.25 per bbl.; buckwheat flour, \$3.75 per 100 lbs. OATMEAL—Akron, \$6.45; Western, \$6.20 per bbl. CORNMEAL—Coarse, 90c; fine 95c; granulated, \$1.75 per cwt. WHEAT—Chicago May opened at \$1.02 $\frac{1}{2}$ and closed at \$1.04, an advance of 1 $\frac{1}{2}$ c; a sale of 6,000 bu No. 1 hard was made early \$1.34; new was offered at 28c over; No. 1 Northern at 14c and No. 2 Northern at 10c over Chicago May; old No 1 hard closed at \$1.35@1.38, new do. \$1.27; No. 1 Northern, \$1.18; No. 2 do., \$1.14. Winter wheat closed firm; sales 6 car loads. No. 2 red early at \$1.04 $\frac{1}{2}$ @1.05; 10 do at \$1.04 to arrive; 3 do No. 2 extra and No. 2 red at \$1.02 $\frac{1}{2}$, 5,000 bu No. 3 red at 90 $\frac{1}{2}$ c and in the afternoon 1,000 bu sample red at \$1.02 $\frac{1}{2}$. CORN—Market unsettled, closing weak; sales 12 carloads No. 3 yellow at 86 $\frac{1}{4}$ c; 8 do No. 3 at 86 $\frac{1}{4}$ @86 $\frac{1}{2}$ c; market closing at inside quotations. OATS—Quiet and steady. No. 2 white quoted 81 $\frac{1}{4}$ @82c; No. 3 white 29 $\frac{1}{4}$ c; choice held at 30c; No. 2 mixed at 28 $\frac{1}{4}$ c; white State from wagons 34c. BARLEY—Unsettled; No. 1 Canadian, 73@74c. No. 2, 70@71c; No. 3 extra, 65@68c; No. 60@62c. RYE—Market dull and nominal. RAILROAD FREIGHTS.—To New York, Baltimore and Philadelphia rate points on grain flour, and feed, 13c, per 100 lbs; to Albany and West Troy, 10 $\frac{1}{2}$ c; to Boston, 15c.

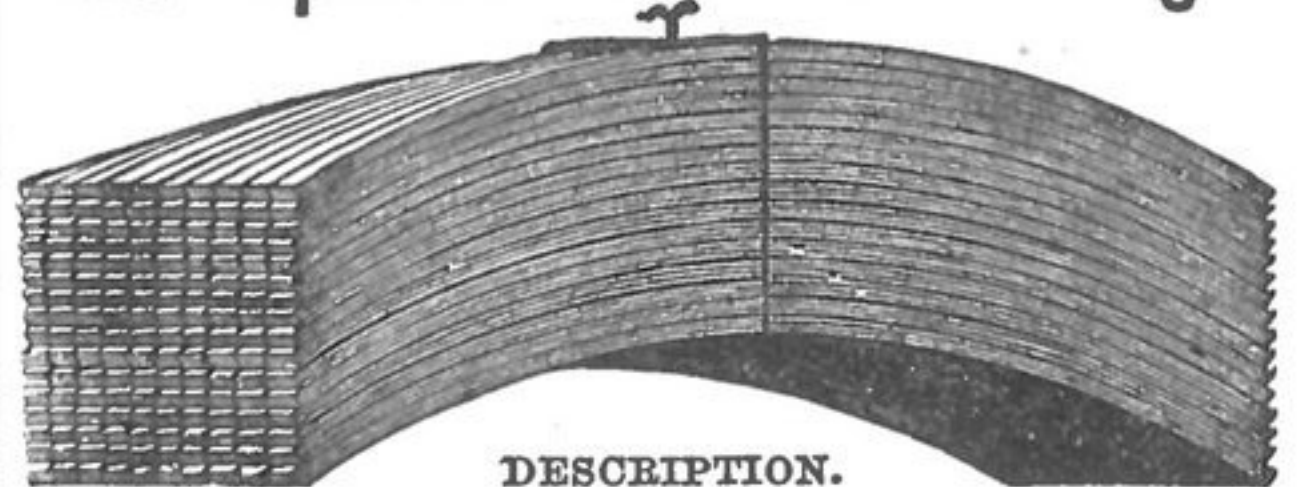
Says a Dakota paper of recent date: The people of Walsh county are highly wrought up over the absolutely false stories of starvation in that county. We remember starving to death in Dakota in the Winter of '80-'81. Never lived better in our life, and yet when we went east in the Spring a man accused us of lying because we said there had been no suffering, and said that he saw with his own eyes 300 coffins shipped from Winona to bury the dead along the Northwestern road.

During January the weather was decidedly warmer than usual in the winter wheat States of the Central valleys, and the general weather conditions were favorable, probably resulting in a slight improvement of the crop conditions compared with January, 1888. The ground re-

mains bare in the greater portions of the wheat region, except in Southern Michigan and the northern portions of Indiana and Ohio, where from one to three inches of snow are reported.

A London report of Feb. 4 says: English wheat is depressed. Prices show an average decline of 1s. The sale of English wheat during the past week was 52,790 quarters at 29s. 9d., against 60,744 quarters at 30s. 8d. during the corresponding week last year. There is a poor trade in flour at prices 5d. per sack lower. American flour made of 1887 wheat sells at a fair price, but that made of 1888 wheat is in disfavor. Foreign wheat has dropped 1s. partly owing to the weakness in English wheat and partly owing to the thaw that has occurred at Odessa enabling freighted steamers to get away. Barley is 3d. lower. At to-day's market English wheat was in a damp and inferior condition and was neglected at a decline of 1s. Foreign wheat was steady. Flour was weak.

New Improved Patent Head Linings.



DESCRIPTION.

These Linings are curved edgewise and flatwise, besides having the edge beveled, so as to make them fit the head and chine PERFECTLY, without springing them edgewise when nailing.

If you use them once you will have NO OTHER. No need of pounding fingers, as the ends do not have to be held down while nailing. They are much more convenient to nail and look better than any other. They are first tied in bundles of two hundred, and, when dry, are put into bales, weighing about fifty pounds each, and tied with two strong wires, to make them handle better and to prevent loosening out in transit.

Write for prices and state about the number you use per year.

To convince you of their merit, and for the purpose of introducing them, I will ship a sample order of from five to ten thousand at a REDUCED RATE.

SEND US A TRIAL ORDER. SATISFACTION GUARANTEED.

J. H. PETERS,
Owner of Patent and Manufacturer,
COLEMAN, MICH.



THIS WHEEL GIVES HIGH RESULTS, AND IS ACKNOWLEDGED THE BEST, MOST PRACTICAL AND EFFICIENT TURBINE MADE. FOR SIMPLICITY, DURABILITY, AND TIGHTNESS OF GATE IT HAS NO EQUAL.

State requirements and send for Catalogue to

T. C. ALCOTT & SON,
MOUNT HOLLY, N. J.

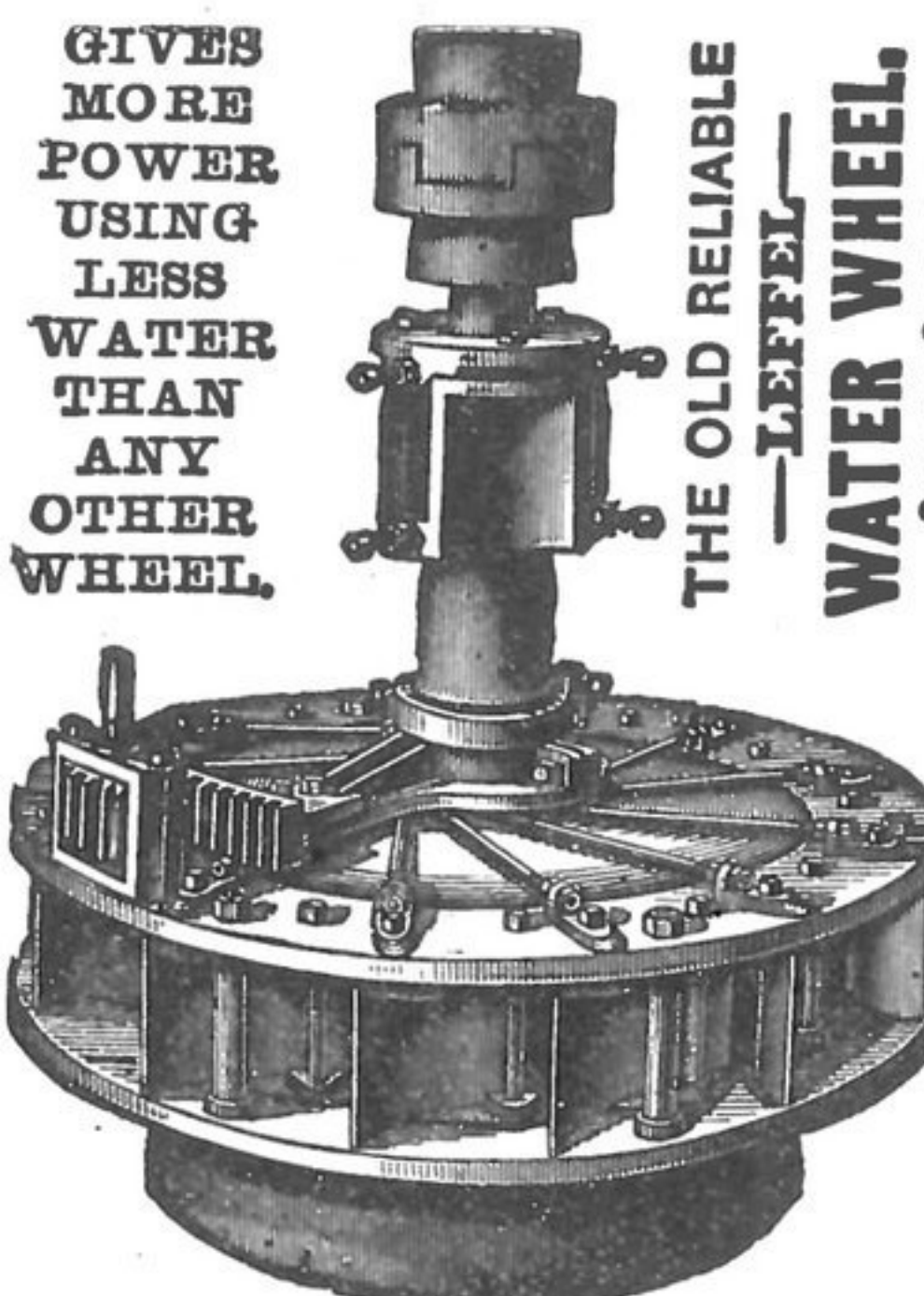
TRADERS & TRAVELERS
Accident Company
Benefits OF NEW YORK

\$ 5,000. for DEATH. | \$ 5,000. for LOSS of LIMBS.
- 2,500. for LOSS of LIMB. | - 2,500. SIGHT.
- 1,250. TOTAL DISABILITY. | - 650. ONE EYE.
- 25% WEEKLY INDEMNITY FOR 26 WEEKS.
ONE SET OF INDIVIDUAL REGISTRY PLATES INCLUDED.

4 QUARTERLY PAYMENTS, \$250. - \$1000
Membership Fee, \$500. ANNUAL DUES, \$100.
\$500. \$100.

287 BROADWAY, N. Y.

GIVES MORE POWER USING LESS WATER THAN ANY OTHER WHEEL.



THE OLD RELIABLE
—LEFFEL—
WATER WHEEL.
SEND FOR CATALOGUE.

JAMES LEFFEL & CO.
SPRINGFIELD, O., OR 110 LIBERTY ST., N. Y.

THE "HARLOW" Positive Feed Lubricators.

For Marine and Stationary Engines,
Steam Pumps, Electrical and
other Machinery.

MAXIMUM ECONOMY IN OIL.
MARKED ECONOMY IN FUEL.

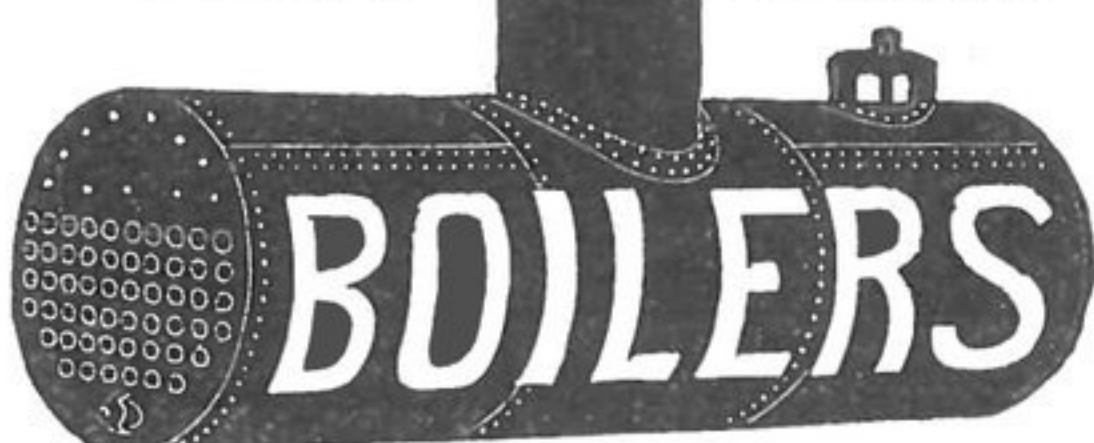
Not dependent upon or
operated by Steam
Pressure, Condensa-
tion or Gravity.
Not affected by chan-
ges of temperature.

BEING operated by
some moving por-
tion of the engine or
machine to be lubri-
cated, the "Harlow
Lubricator" starts
and stops with the
engine or machine
being lubricated, without requiring the slightest atten-
tion from the engineer or operator, always delivering the
oil in any amount from a drop to a constant stream.
The cup can be filled at any moment while the engine
or machine being lubricated is in operation, without
causing any leakage either of oil or steam.

Harlow Lubricator Mfg. Co. BOSTON, Mass.
U. S. A.

EAGLE IRON WORKS, DETROIT, MICH.

MANFRS. OF HIGH GRADE



**HORIZONTAL, UPRIGHT
PORTABLE AND MARINE.**

Oil Tanks & Smoke Stacks,

HEAVY SHEET IRON WORK.

CORRESPONDENCE SOLICITED.

THE BEST AND CHEAPEST CORN AND COB CRUSHER IN THE WORLD.

All wearing parts cast of a steel mixture. Notice difference in construction. Most area where most work is done, where all other crushers have least area where most work is done. Low priced machinery is not the cheapest, considering durability and efficiency. Sent on 30 days' trial when satisfactory reference is furnished.

Please Send for Circulars.

R. C. McCULLEY, LANCASTER, PENN.

\$15 Will Buy the Best and Cheapest
CORN AND COB CRUSHER
IN THE WORLD!

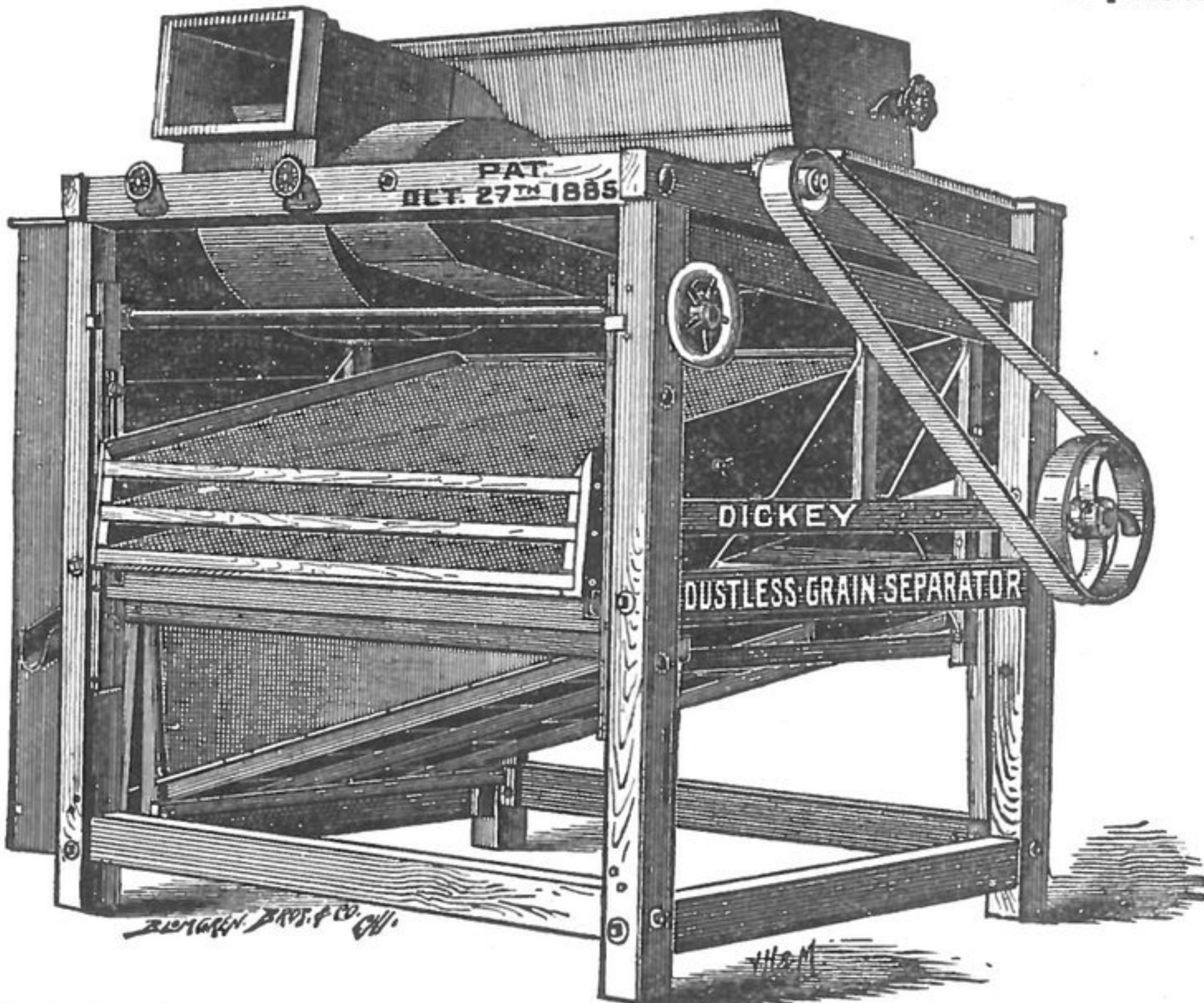


It can be driven either from above or below. Thousands of these Crushers are now in use throughout the United States and Canada, and are giving entire satisfaction. Send for circular, giving testimonials from millers who are using our Crusher, and know a good thing when they see it.

T. B. WOOD & SONS, CHAMBERSBURG, PA.

DICKEY DUSTLESS GRAIN AND FLAX SEPARATOR

This Separator is our latest and most perfect, and guaranteed to be the superior of any now on the market. This machine, as can be seen by the cut, is not a warehouse fanning mill with one patent attachment, but is a Dustless Separator, made for the express purpose of thoroughly cleaning and separating all kinds of grain in large quantities; its construction is such that the working machinery and weight is all within the parts or anchors.



WE CLAIM FOR IT SUPERIORITY.

WE CLAIM FOR IT SUPERIORITY.

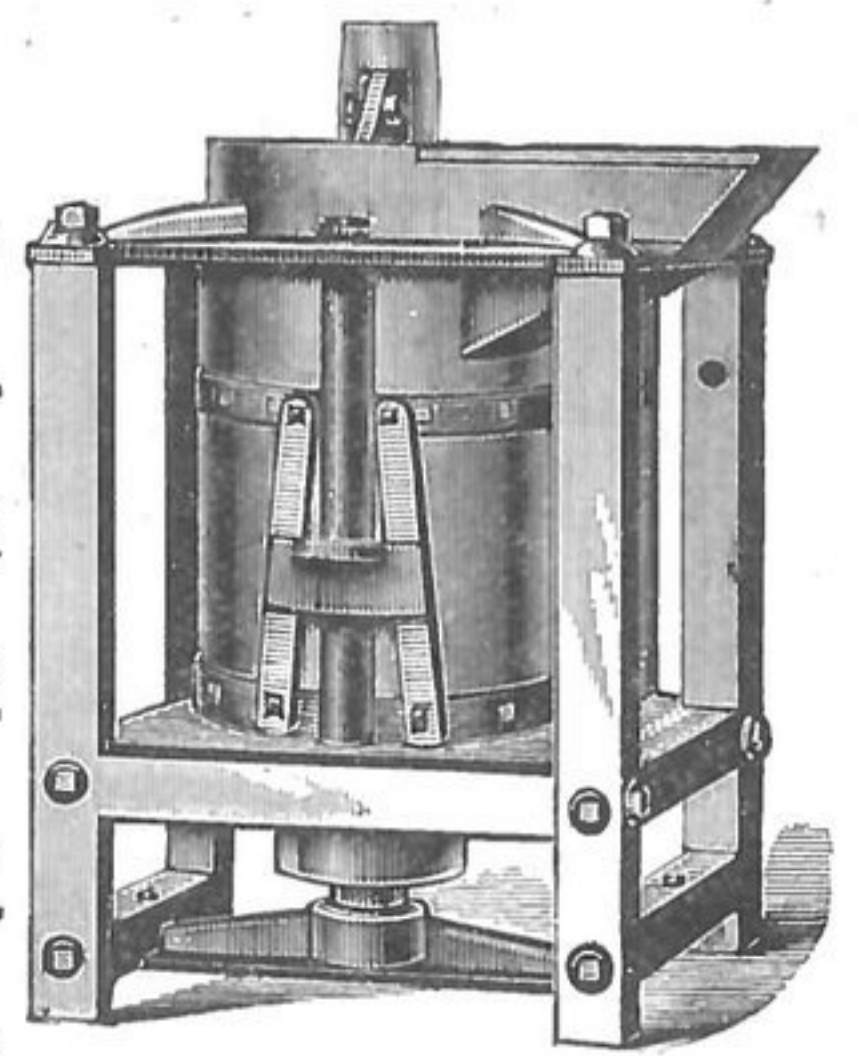
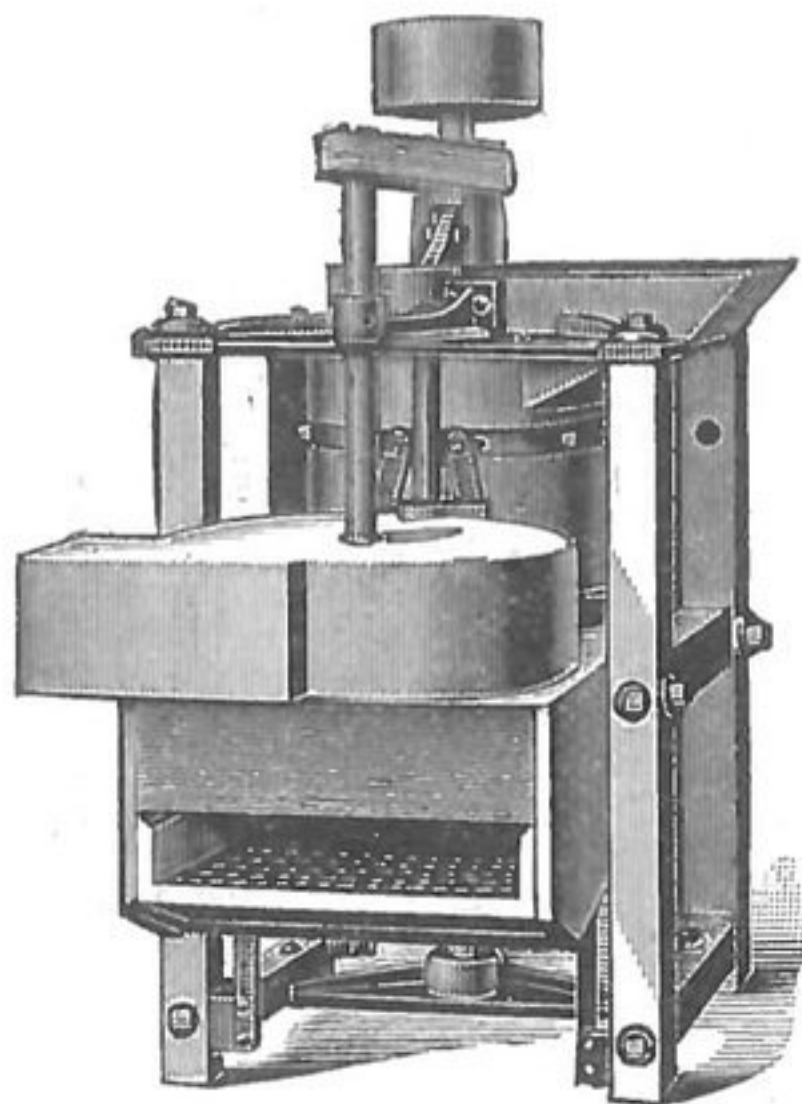
We claim for it Superiority over everything of the kind made, in simpleness, durability, saving of power, capacity and cost of construction. Its height will accommodate any number of spouts from different points, without moving machine. They have a capacity from 700 to 1,500 bushels per hour. We also control exclusively the manufacture of the celebrated Dickey Giant, End and Side Shake, Warehouse Mills, that have attained such a world-wide reputation. Sent on approval to any reliable party. For full particulars address,

A. P. DICKEY MANUFACTURING CO. Successors to **DICKEY & PEASE, RACINE, WIS.**

The LIPPOLD DUSTLESS CORN SHELLER & CLEANER

MANUFACTURED BY

The LIPPOLD MFG. CO.
ERIE, - - PENN.



THE HIGHEST CAPACITY for the LEAST MONEY.
The Best Machines for Mills and Elevators.
Machines Sent on Thirty Days' Trial.
SHELL UNHUSKED CORN AND CLEAN IT PERFECTLY.

WRITE FOR ILLUSTRATED CIRCULAR WITH PRICES.
NAME THIS PAPER.



THIS LATEST NOVELTY FREE.

Flowers large and fragrant. Color a soft, satiny-pink, distinctly striped and dashed with white and carmine. Free bloomer. Price, \$1.00, including copy of Floral Guide, if desired. Write for instructions how to get plant free.

VICK'S FLORAL GUIDE

for 1889, Pioneer Seed Catalogue of America, revised, enlarged, new shape, new type, elegant cover, frontispiece, and 3 Colored Plates. Illustrations and descriptions of every popular plant, flower and vegetable, and prices of same. Only 15 cents, with certificate good for that amount in seeds. JAMES VICK SEEDSMAN, Rochester, N. Y.



H. J. DEAL

Specialty Company.

Flour and Grain Testing Appliances,
Specialties for the Milling, Flour and
Grain Trades.

BUCYRUS, O., U. S. A.

SPECIALTIES
ILLUSTRATED FOLDER "T"
FOR THE HOLIDAYS.
NOW READY.

Please write for a copy at once. Only mailed to customers and on application. This is the most complete and extensive list of specialties ever issued by us. Write at once and secure a copy.

THE H. J. DEAL SPECIALTY CO.
BUCYRUS, OHIO, U. S. A.

Chemical Fire Extinguisher Co.

38 & 40 LASALLE STREET,

CHICAGO, - - ILL.

MANUFACTURERS OF THE

Only Chemical Automatic Fire Extinguisher Made.

No Freezing; No Corroding; No Leaking.
Cheapness and Absolute Reliability and Reduction in Cost of Insurance. We also manufacture everything in the line of Chemical Extinguishers, from a full 100 gallon engine to a quart Hand Fire Extinguisher, of the best and most approved kind. One gallon of our chemical is equal to 500 gallons of water.

SEND FOR ILLUSTRATED CATALOGUE.

L. L. WHITLOCK,
Advertising Agent

FOR MANUFACTURERS.

TRADE JOURNALS A SPECIALTY.

P. O. DRAWER 5323. Boston, Mass.

As Agent for Advertisers instead of Papers, I obtain the Best Rates Possible for my Customers.

* **THE INK** *
WITH WHICH THIS PAPER IS PRINTED
IS MADE BY THE
QUEEN CITY PRINTING INK CO.
CINCINNATI, O.

"DE MAN WOT KNOWS IT ALL
is allus a-makin' change, a-
buyin' ob experience."

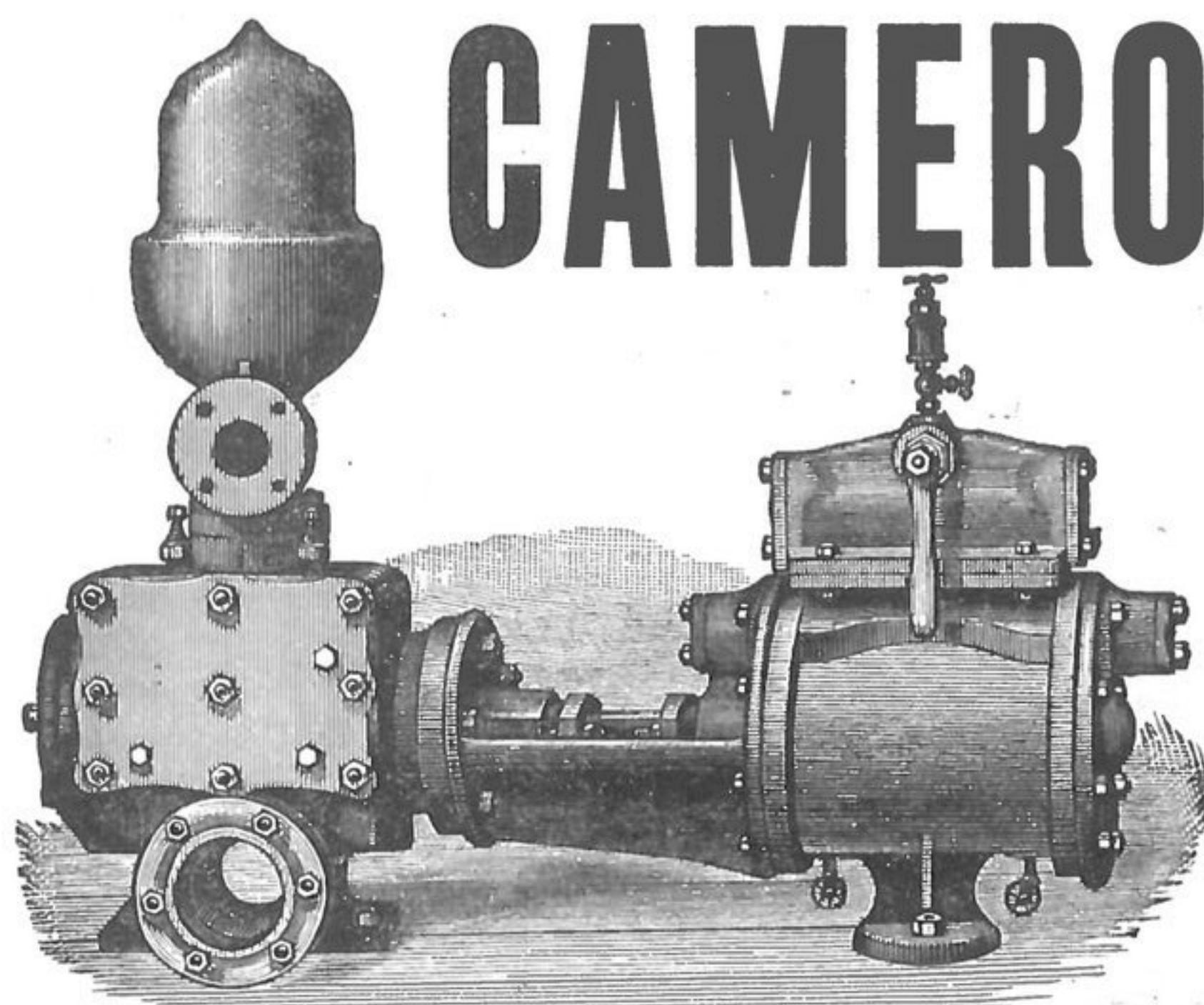
The man who does not think that
he "Knows it All" about

Pumps, Steam Engines and Boilers
Can find out a great deal about
them in

GRIMSHAW'S PUMP CATECHISM - \$1.00
STEAM ENGINE CATECHISM - - - 2.00
BOILER CATECHISM - - - - - 2.00
PREPARING FOR INDICATION - - 1.00

BY MAIL POSTPAID.

McFaul & Nolan, - Buffalo, N. Y.



CAMERON STEAM PUMP

THE STANDARD OF EXCELLENCE.

SIMPLE! COMPACT! DURABLE!

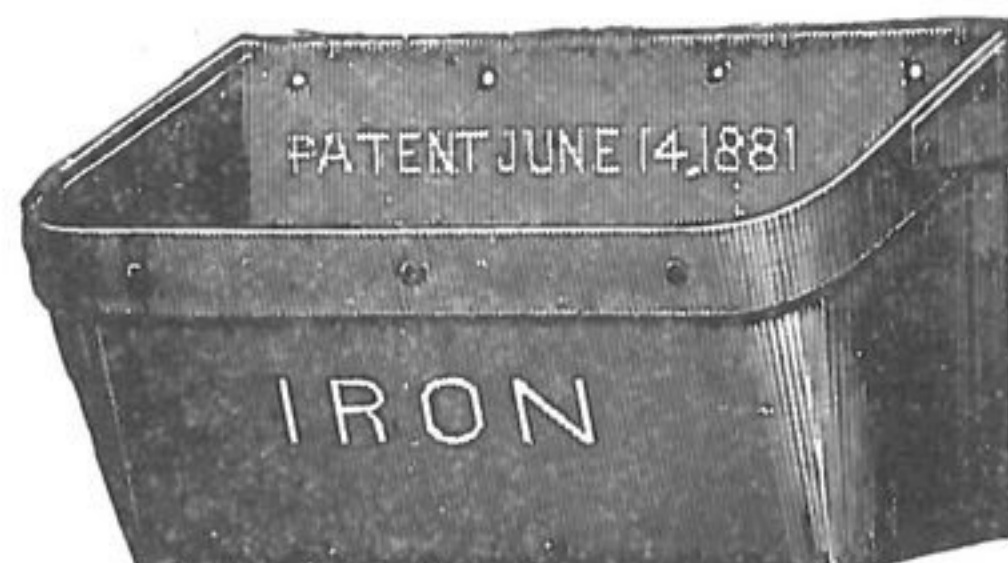
"NO OUTSIDE VALVE GEAR."

Steam, Air & Vacuum Pumps in Every Variety

FOR ILLUSTRATED CATALOGUE ADDRESS

THE A.S. CAMERON STEAM PUMP WORKS

Foot of East 23d Street, - New York.



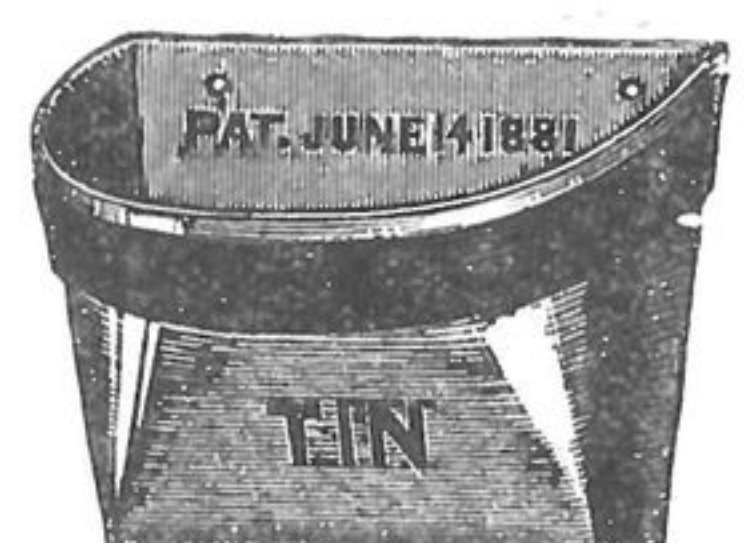
Made of sheet steel, with heavy band.

BOSS & ELEVATOR BUCKETS.

If you are interested ask for Prices. Manufactured only by

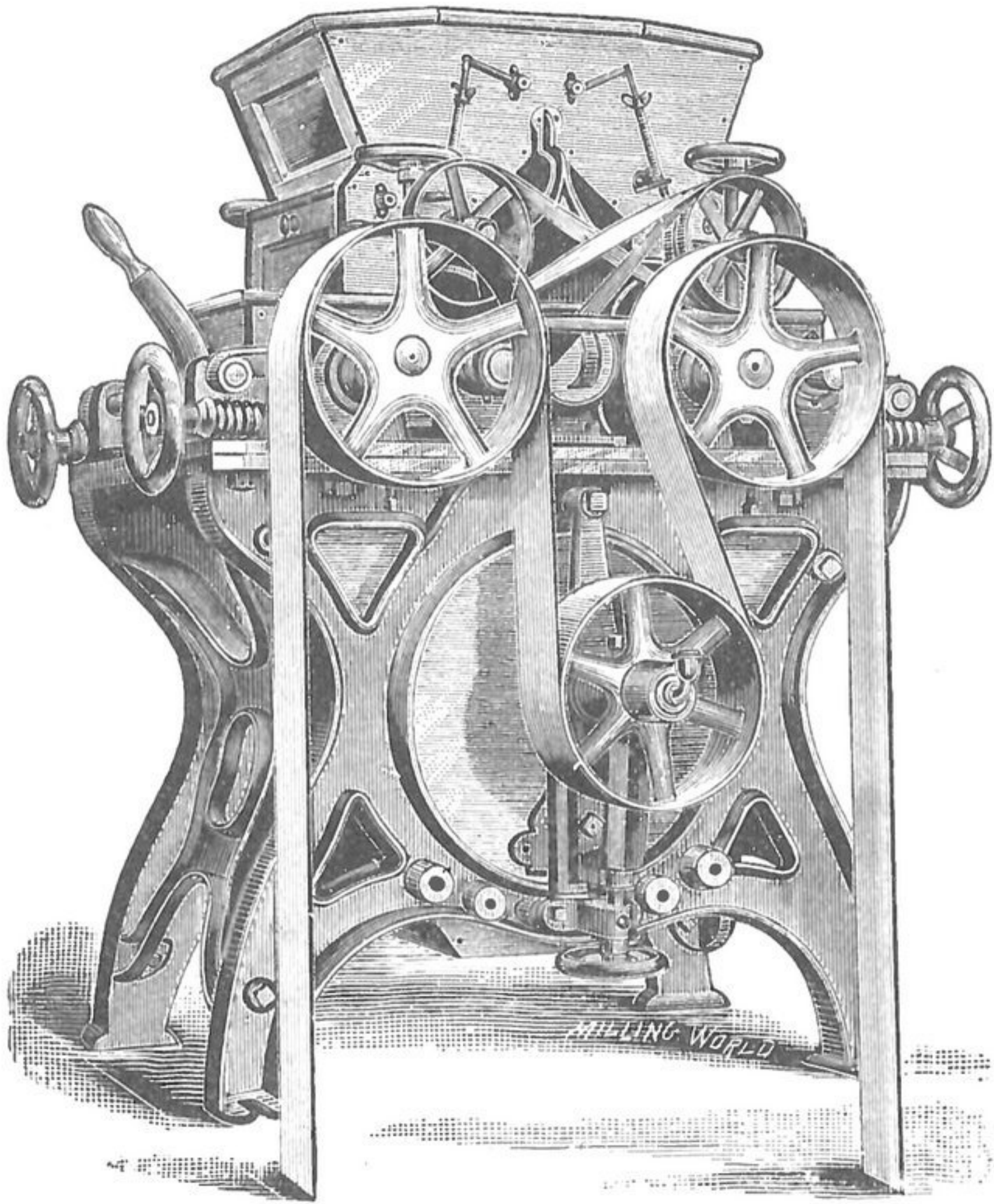
W. P. MYER, INDIANAPOLIS, IND.

16, 18 AND 20 EAST SOUTH STREET.



Made of tinned steel plate, with iron band.

JOHN HUTCHISON MFG. CO., Mill Builders and Mill Furnishers.



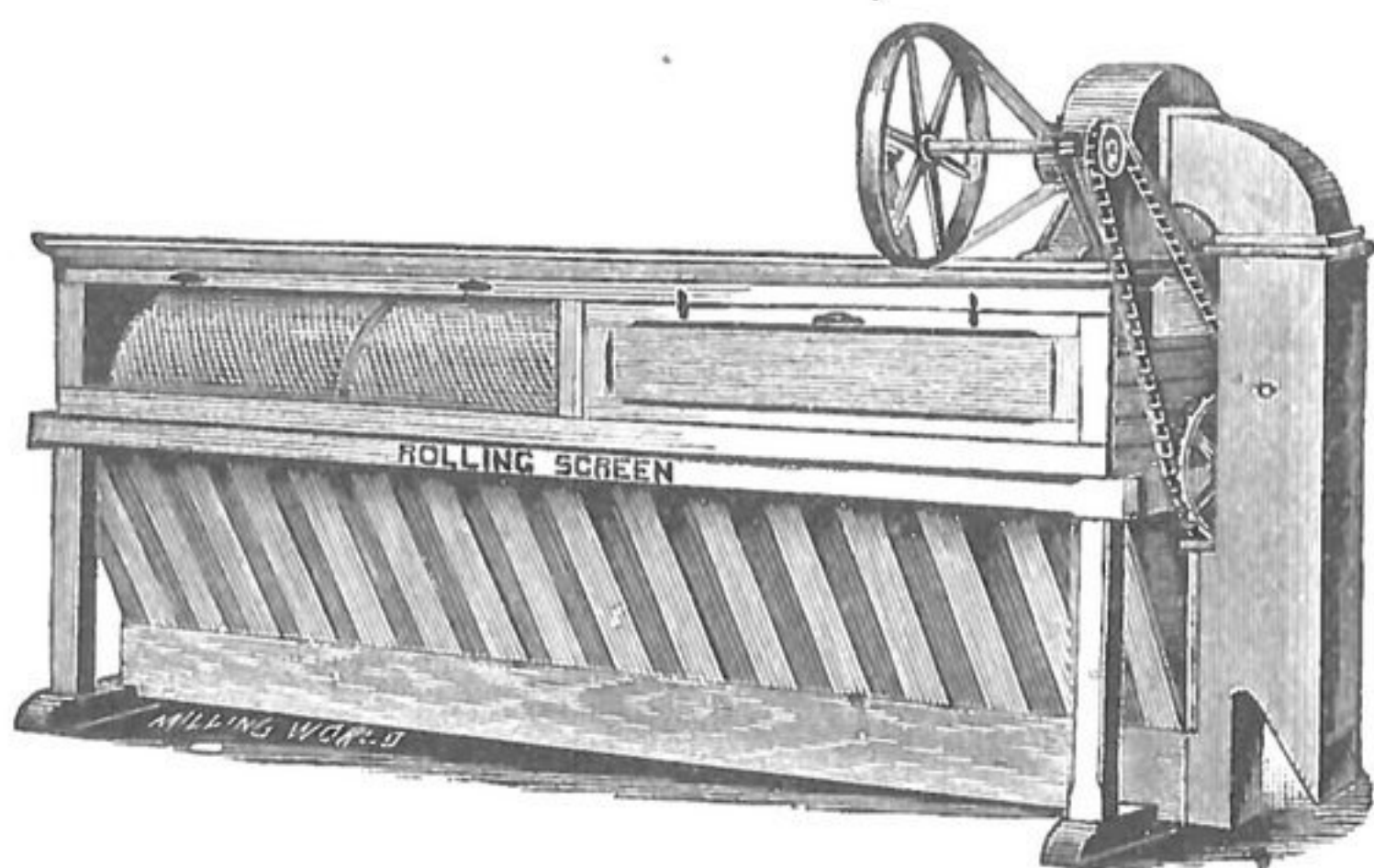
"The Rickerson." The original six inch 4 Roller Mill. We now own the patents on this mill and after greatly improving the mill manufacture them in four sizes:

6x12 inch.

6x18 inch.

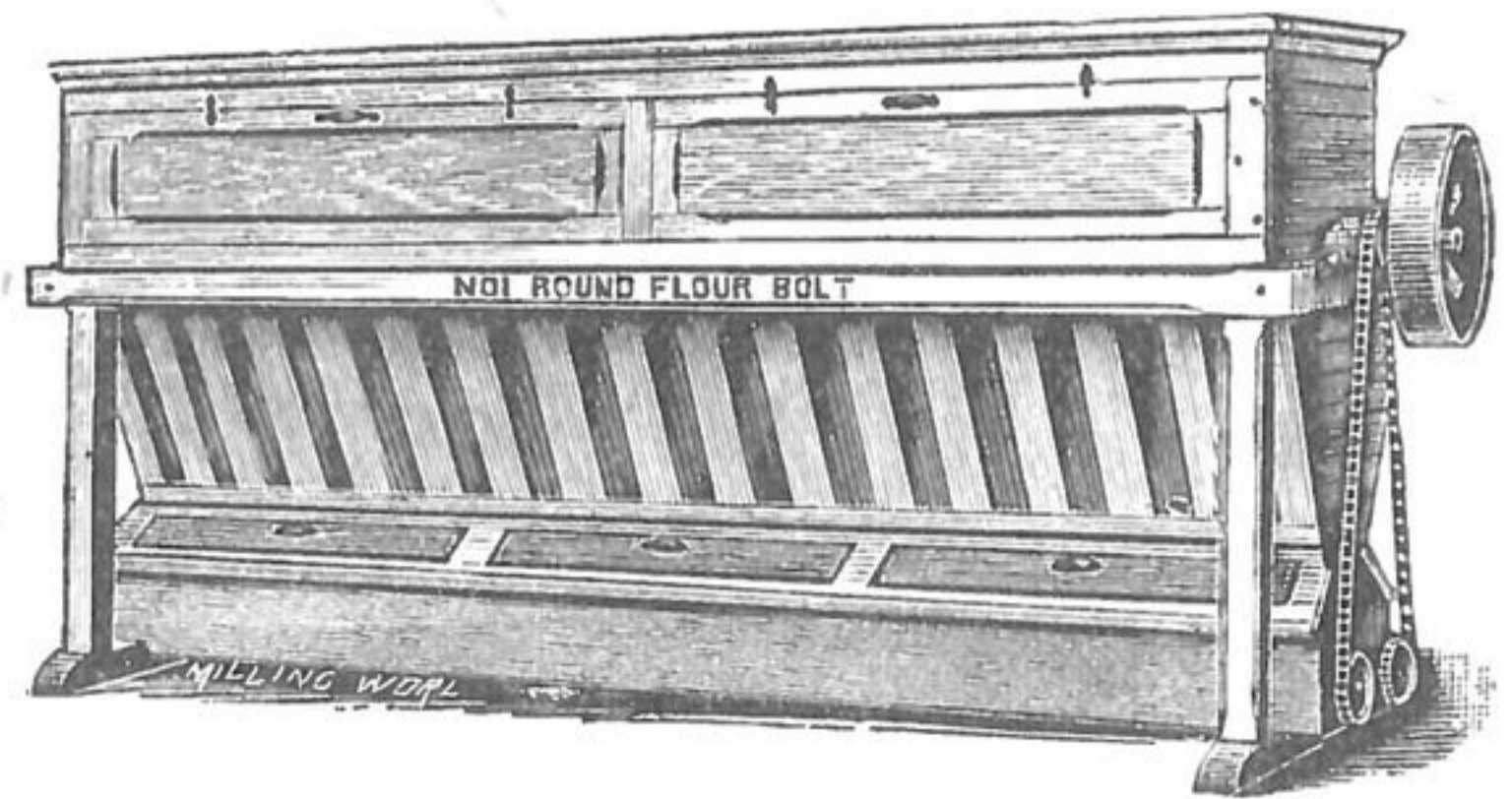
6x15 "

6x20 "

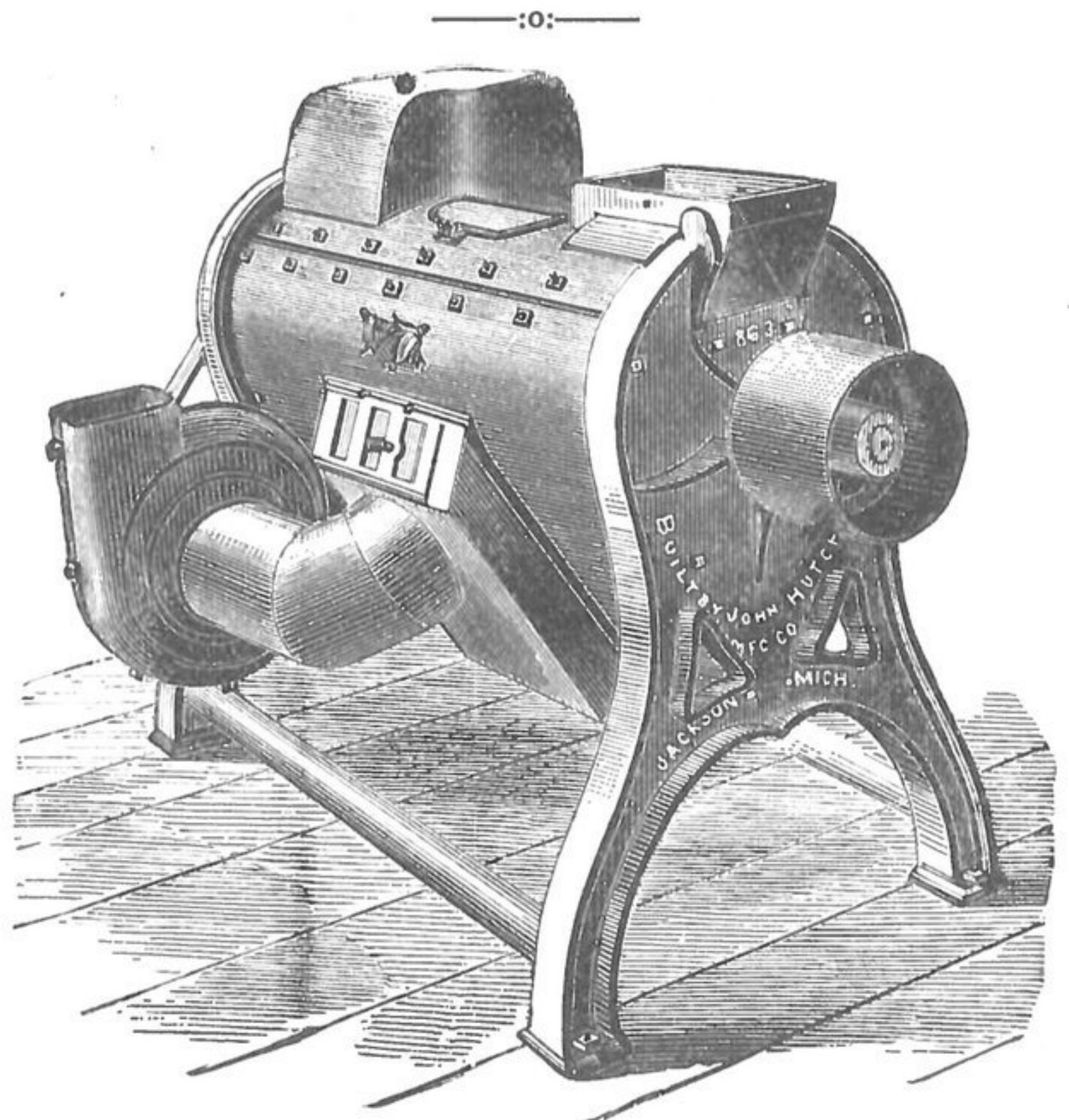


The above cut represents our New Rolling Screen, which is absolutely dustless and has as much scouring qualities as any two scouring machines now being made.

Send for Estimates for Our Full Roller Mills of any Capacity.



The above cut shows our New Round Slow Running Flour Bolt. We also build a Cylinder or Round Scalping Reel and we have lately built a number of new mills of medium capacity, using our Roller Mills, our Round Flour Bolts and Scalping Reels, getting better results than is usually obtained.



Hutchison's New Dustless Iron Corn Sheller, especially adapted for Mill and Elevator use.

—:ADDRESS ALL CORRESPONDENCE TO:—

John Hutchison Mfg. Co.

JACKSON, . . MICHIGAN.



ELEVATOR BUCKET.

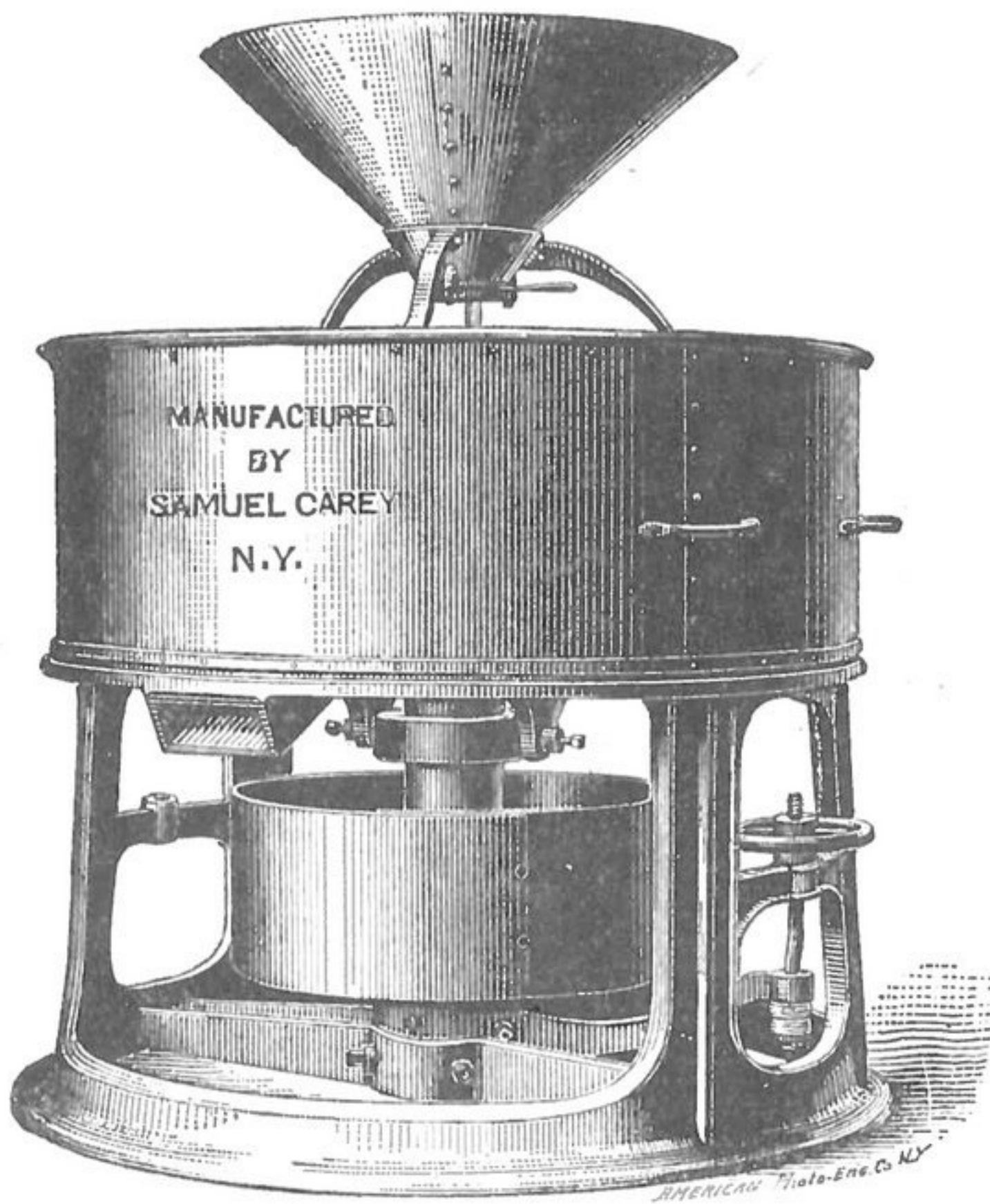
PLEASE NOTICE.

Our patents not only cover Seamless, Drawn, Stamped, Pressed or Forged Elevator Buckets; but also Pre-Date and Cover Round-Cornered Elevator Buckets when made Seamless, and are the Only patents ever issued in the World for a Pressed, Stamped, Drawn or Forged Seamless Elevator Bucket.

THE AVERY STAMPING CO.,
Successors to The Avery Elevator Bucket Co.,
Cleveland, Ohio, U. S. A.



CLAY BUCKET.



SELF-TRAMMING
PORTABLE MILL

BEST GRINDING MILL MADE.

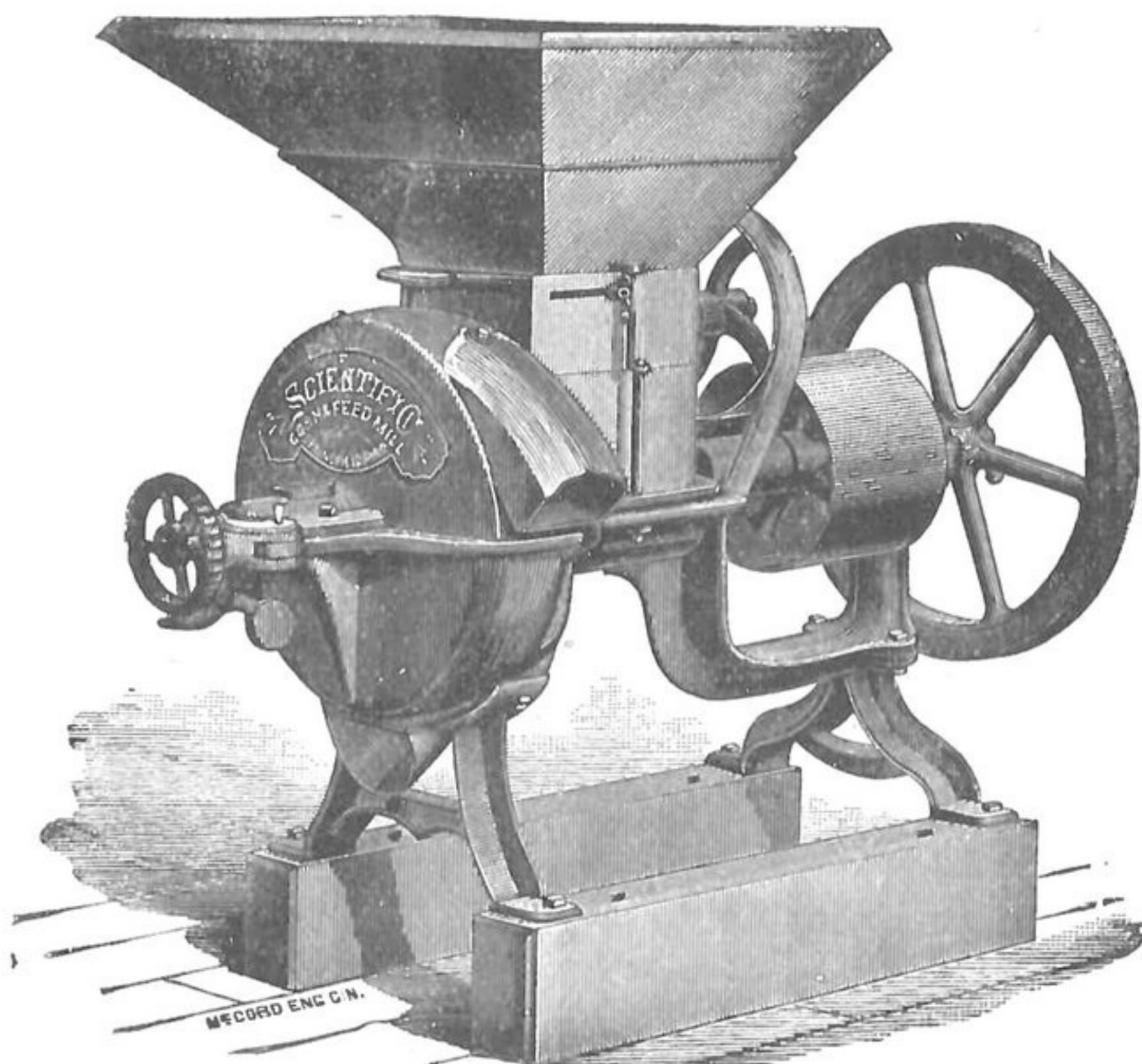
BOLTING CLOTH

CLOTHS MADE UP TO FIT ANY SIZE REEL.

BURR AND ESOPUS
MILLSTONES.

SPINDLES, PULLEYS, MILL PICKS, BELTING, ELEVATOR BUCKETS
AND GENERAL MILL FURNISHINGS. FOR CATALOGUE
AND PRICES, ADDRESS

SAMUEL CAREY, 17 BROADWAY, NEW YORK



—THE SCIENTIFIC—
GRINDING MILL.

POSITIVELY THE BEST MILL ON EARTH.

GRINDS PERFECTLY, EAR CORN, SHELLED CORN,
AND ALL GRAINS.

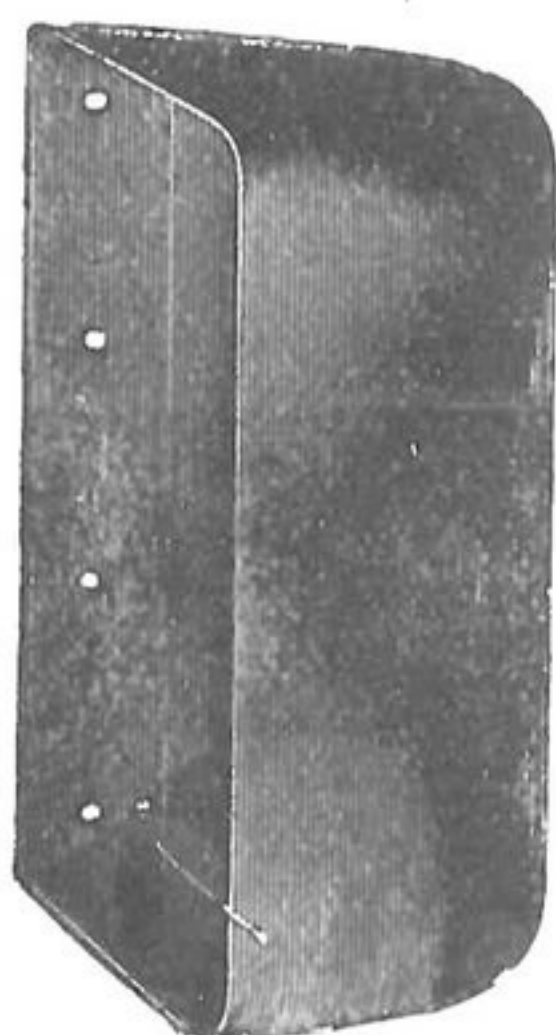
GRINDING PLATES A SPECIAL METAL

*Hard as Steel, Guaranteed to Grind from Five to Eight
Thousand Bushels before wearing out.*

SEND FOR ILLUSTRATED CATALOGUE, PRICES, ETC.

THE FOOS MFG. CO.

SPRINGFIELD OHIO.

STILL ON TOP.

Perhaps the **HIGHEST COMPLIMENT** that could be paid the "Salem" bucket is the fact that during the past few years ITS SHAPE HAS BEEN SO CLOSELY IMITATED by other manufacturers as to infringe our patented rights, but experience reveals the **IMPERFECTIONS OF IMITATIONS**, and we therefore take it as a **FURTHER COMPLIMENT** to the "SALEM" bucket that some of its old patrons who were *Induced to Try the Imitations have now Returned to the Salem Bucket, thereby Acknowledging it to be the Most Satisfactory.* Don't be deceived by other makes of buckets that are claimed to be "Just as Good." Insist upon having the **ORIGINAL AND RELIABLE SALEM BUCKET.** All legitimate Salem buckets are plainly marked with the word

SALEM

W. J. CLARK & CO., SOLE Manufacturers **SALEM, OHIO.**

THORNBURGH & GLESSNER, General Agents, CHICAGO, ILL.